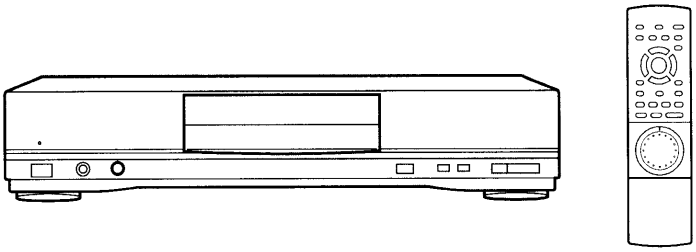
TOSHIBA

FILE NO. 810-9901

SERVICE MANUAL

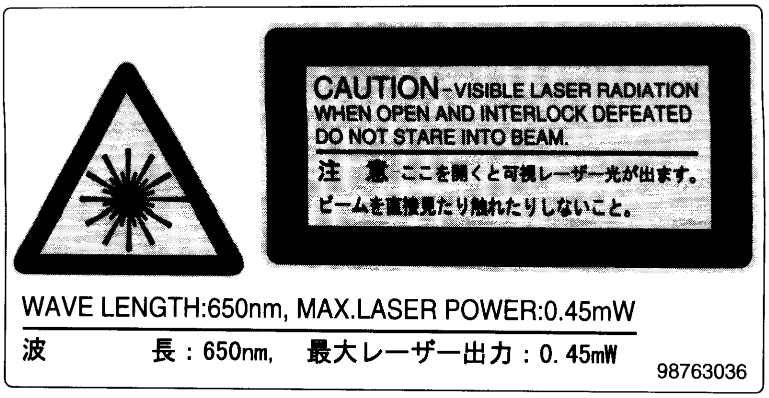
DVD VIDEO PLAYER

SD-9000B
SD-9000E



PRINTED IN JAPAN, Mar., 1999 Ⓢ

LASER BEAM CAUTION LABEL



CAUTION - VISIBLE LASER RADIATION
WHEN OPEN AND INTERLOCK DEFEATED
DO NOT STARE INTO BEAM.

注　意－ここを開くと可視レーザー光が出ます。
ビームを直接見たり触れたりしないこと。

WAVE LENGTH:650nm, MAX.LASER POWER:0.45mW

波　長：650nm,　最大レーザー出力：0.45mW

98763036

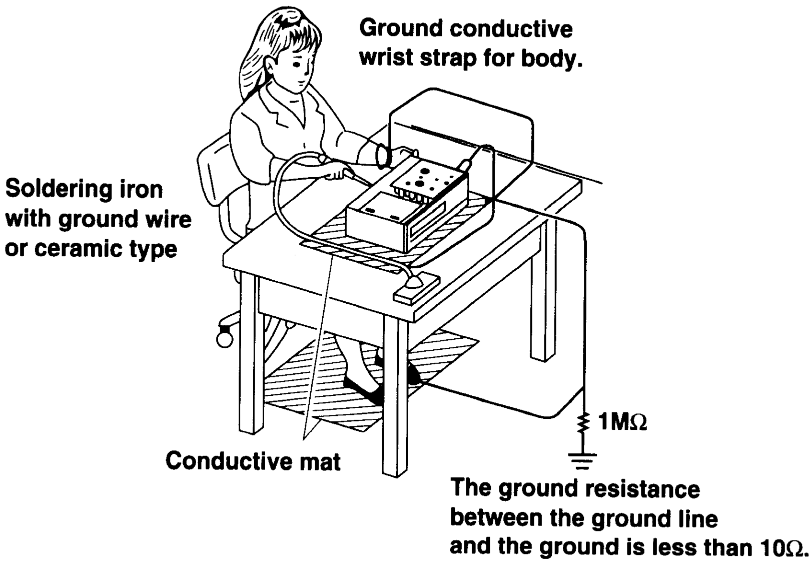
When the power supply is being turned on, you may not remove this laser cautions label. If it removes, radiation of a laser may be recceived.

PREPARATION OF SERVICING

Pickup Head consists of a laser diode that is very susceptible to external static electricity.

Although it operates properly after replacement, if it was subject to electrostatic discharge during replacement, its life might be shortened. When replacing, use a conductive mat, soldering iron with ground wire, etc. to protect the laser diode from damage by static electricity.

And also, the LSI and IC are same as above.


Ground conductive wrist strap for body.
Soldering iron with ground wire or ceramic type
Conductive mat
1MΩ
The ground resistance between the ground line and the ground is less than 10Ω.

CONTENTS

SECTION 1
GENERAL DESCRIPTIONS

1. OPERATING INSTRUCTIONS 1-1
2. LOCATION OF MAIN PARTS AND MECHANISM PARTS 1-22
    2-1. Location of Main Parts 1-22
    2-2. Location of Mechanism Parts 1-23
3. TROUBLESHOOTING 1-26
    3-1. Main Circuit 1-26
    3-1-1. Servo System 1-26
    3-1-2. Location Diagram of Servo Test Point 1-34

SECTION 2
PART REPLACEMENT AND ADJUSTMENT PROCEDURES

1. REPLACEMENT OF MECHANICAL PARTS 2-1
    1-1. Cabinet Replacement 2-1
    1-1-1. Top Cover 2-1
    1-1-2. Tray 2-1
    1-1-3. Tray Panel 2-1
    1-1-4. Bottom Plate 2-2
    1-1-5. Front Panel 2-2
    1-1-6. Rear Panel 2-2
    1-2. PC Board Replacement 2-3
    1-2-1. Output PC Board 2-3
    1-2-2. Main and Sub Video PC Boards 2-3
    1-2-3. Power Supply PC Board 2-4
    1-2-4. Front Display, H.P AMP and Power Switch PC Boards 2-4
    1-3. Mechanism Parts Replacement 2-5
    1-3-1. Mechanism Chassis Assembly 2-5
    1-3-2. Loading Motor and Detection Switch 2-5
    1-3-3. Pickup Mechanism Assembly 2-6
    1-3-4. Gear B Assembly, Gear A, Feed Motor Gear Assembly and Rack Gear Assembly 2-8
    1-3-5. Feed Motor 2-9

SECTION 3
SERVICING DIAGRAMS

1. STANDING PC BOARDS FOR SERVICING 3-1
2. CIRCUIT SYMBOLS AND SUPPLEMENTARY EXPLANATION 3-2
    2-1. Precautions for Part Replacement 3-2
    2-2. Solid Resistor Indication 3-2
    2-3. Capacitance Indication 3-2
    2-4. Inductor Indication 3-3
    2-5. Waveform and Voltage Measurement 3-3
    2-6. Others 3-3
    2-7. When Replaced ROM ICs or Upgraded Firmware 3-4
3. PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM 3-5
4. BLOCK DIAGRAMS 3-7
    4-1. Overall Block Diagram 3-7
    4-2. Power Supply Block Diagram 3-9
    4-3. Headphone AMP Block Diagram 3-9
    4-4. Front Display Block Diagram 3-11
    4-4-1. Front Display Microcomputer Terminal Function 3-11
    4-4-2. Front Display 3-12
    4-4-3. Front Display Pattern 3-12
    4-4-4. Front Display Block Diagram 3-13
    4-5. Main Block Diagrams 3-15
    4-5-1. Servo System Block Diagram 3-15
    4-5-2. Logical System Block Diagram 3-17
    4-6. Output Block Diagram 3-19
5. CIRCUIT DIAGRAMS 3-21
    5-1. Power Supply Circuit Diagram 3-21
    5-2. Front Display Circuit Diagram 3-24
    5-3. Main Circuit Diagram 3-27
    5-3-1. Main ICs Information 3-27
    5-3-2. Main Circuit Diagram 3-34
    5-4. Output Circuit Diagram 3-39
    5-5. Sub Video Circuit Diagram 3-43
    5-6. Motor System Circuit Diagrams 3-45
6. PC BOARDS 3-47
    6-1. Power Supply PC Board 3-47
    6-2. Headphone AMP PC Board 3-48
    6-3. Sub Video PC Board 3-49
    6-4. Output PC Board 3-51
    6-5. Main PC Board 3-54
    6-6. Front Display PC Board 3-63
    6-7. Power Switch PC Board 3-63
    6-8. Power Switch Sub PC Board 3-64

SECTION 4
PARTS LIST

SAFETY PRECAUTION 4-1
NOTICE 4-1
ABBREVIATIONS 4-1
    1. Integrated Circuit (IC) 4-1
    2. Capacitor (Cap) 4-1
    3. Resistor (Res) 4-1
4. EXPLODED VIEWS 4-2
    4-1. Packing Assembly 4-2
    4-2. Remote Control Unit 4-2
    4-3. Chassis Assembly 4-3
    4-4. Mechanism Assembly 4-4
5. PARTS LIST 4-5

SECTION 1
GENERAL DESCRIPTIONS

1. OPERATING INSTRUCTIONS

SAFETY PRECAUTIONS

WARNING: **TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE. DANGEROUS HIGH VOLTAGES ARE PRESENT INSIDE THE ENCLOSURE. DO NOT OPEN THE CABINET. REFER SERVICING TO QUALIFIED PERSONNEL ONLY.**

CAUTION: This Digital Video Disc Player employs a Laser System.
To ensure proper use of this product, please read this owner's manual carefully and retain for future reference. Should the unit require maintenance, contact an authorized service location - see service procedure.

Use of controls, adjustments or the performance of procedures other than those specified may result herein hazardous radiation exposure.

To prevent direct exposure to laser beam, do not try to open the enclosure.
Visible laser radiation when open and interlocks defeated.
DO NOT STARE INTO BEAM.

In the spaces provided below, record the Model and Serial No. located on the rear panel of your DVD video player.

Model No. ______________________ Serial No. ______________________

Retain this information for future reference.

The following information applies only to SD-9000B, the model for U.K.

General Information

If the socket outlets in your home are not suitable for the plug supplied with this unit, the plug must be cut off and an appropriate one fitted.

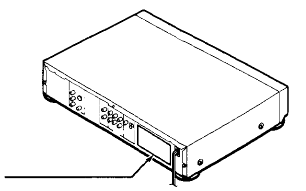
The plug severed from this mains lead must be destroyed as it is hazardous if inserted into a live socket.

IMPORTANT
The wires in this mains lead are coloured in accordance with the following code:
BLUE: NEUTRAL
BROWN: LIVE
As the colours of the wires in the mains lead of this unit may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:
The wire that is coloured blue must be connected to the terminal in the plug which is marked with the letter N or coloured black.
The wire that is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

Do not connect either wire to the earth terminal which is marked by the letter E or by the safety earth symbol ⏚ or coloured green or green-and-yellow.

Use a 5A fuse which is approved by ASTA or BSI to BS1362.
Always replace the fuse cover after changing the fuse.

Location of the required label



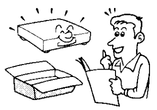
The rating plate and the safety caution are on the rear of the unit.

IMPORTANT SAFETY INSTRUCTIONS

CAUTION: PLEASE READ AND OBSERVE ALL WARNINGS AND INSTRUCTIONS GIVEN IN THIS OWNER'S MANUAL AND THOSE MARKED ON THE UNIT. RETAIN THIS BOOKLET FOR FUTURE REFERENCE.

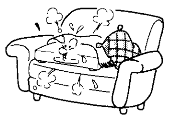
This set has been designed and manufactured to assure personal safety. Improper use can result in electric shock or fire hazard. The safeguards incorporated in this unit will protect you if you observe the following procedures for installation, use and servicing. This unit is fully transistorized and does not contain any parts that can be repaired by the user.
DO NOT REMOVE THE CABINET COVER, OR YOU MAY BE EXPOSED TO DANGEROUS VOLTAGE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL ONLY.

1. Read owner's manual
   After unpacking this product, read the owner's manual carefully, and follow all the operating and other instructions.

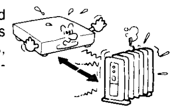


2. Power Sources
   This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company. For products intended to operate from battery power, or other sources, refer to the operating instructions.

3. Ventilation
   Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating, and these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug or other similar surface. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.

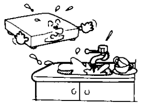


4. Heat
   The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

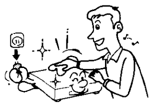


IMPORTANT SAFETY INSTRUCTIONS

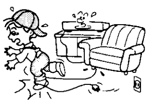
5. Water and Moisture
Do not use this product near water - for example, near a bath tub, wash bowl, kitchen sink, or laundry tub; in a wet basement; or near a swimming pool and the like.



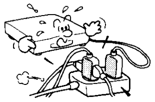
6. Cleaning
Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.



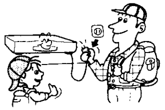
7. Power-Cord Protection
Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.



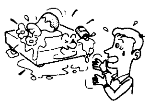
8. Overloading
Do not overload wall outlets; extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock.



9. Lightning
For added protection for this product during storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet. This will prevent damage to the product due to lightning and power-line surges.

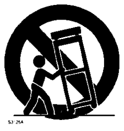


10. Object and Liquid Entry
Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

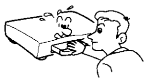


11. Attachments
Do not use attachments not recommended by the product manufacturer as they may cause hazards.

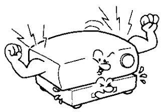
12. Accessories
Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the product. Any mounting of the product should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.
A product and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product and cart combination to overturn.



13. Disc Tray
Keep your fingers well clear of the disc tray as it is closing. It may cause serious personal injury.

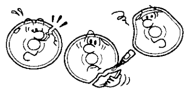


14. Burden
Do not place a heavy object on or step on the product. The object may fall, causing serious personal injury and serious damage to the product.



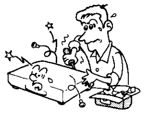
15. Headphones
When you use the headphones, keep the volume at a moderate level. If you use the headphones continuously with high volume sound, it may cause hearing damage.

16. Disc
Do not use a cracked, deformed, or repaired disc. These discs are easily broken and may cause serious personal injury and product malfunction.



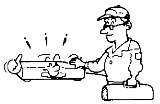
17. Damage Requiring Service
Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
a) When the power-supply cord or plug is damaged.
b) If liquid has been spilled, or objects have fallen into the product.
c) If the product has been exposed to rain or water.
d) If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.
e) If the product has been dropped or damaged in any way.
f) When the product exhibits a distinct change in performance - this indicates a need for service.

18. Servicing
Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.



19. Replacement Parts
When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.

20. Safety Check
Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.



Introduction

Precautions

Notes on Handling

- When shipping the DVD video player, the original shipping carton and packing materials come in handy. For maximum protection, repack the unit as it was originally packed at the factory.
- Do not use volatile liquids, such as insect spray, near the DVD video player. Do not leave rubber or plastic products in contact with the DVD video player for a long time. They will leave marks on the finish.
- The top and rear panels of the DVD video player may become warm after a long period of use. This is not a malfunction.
- When the DVD video player is not in use, be sure to remove the disc and turn off the power.
- If you do not use the DVD video player for a long period, the unit may not function properly in the future. Turn on and use the DVD video player occasionally.

Notes on Locating

- When you place this DVD video player near a TV, radio, or VTR, the playback picture may become poor and the sound may be distorted. In this case, place the DVD video player away from the TV, radio, or VTR.

Notes on Cleaning

Use a soft, dry cloth for cleaning.

- For stubborn dirt, soak the cloth in a weak detergent solution, wring well and wipe. Use a dry cloth to wipe it dry. Do not use any type of solvent, such as thinner and benzine, as they may damage the surface of the DVD video player.
- If you use a chemical saturated cloth to clean the unit, follow that product's instructions.

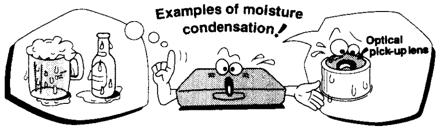
To Obtain a Clear Picture

The DVD video player is a high technology, precision device. If the optical pick-up lens and disc drive parts are dirty or worn down, the picture quality becomes poor. To obtain a clear picture, we recommend regular inspection and maintenance (cleaning or parts replacement) every 1,000 hours of use depending on the operating environment. For details, contact your nearest dealer.

Notes on Moisture Condensation

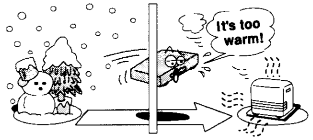
Moisture condensation damages the DVD video player. Please read the following carefully.

Moisture condensation occurs, for example, when you pour a cold drink into a glass on a warm day. Drops of water form on the outside of the glass. In the same way, moisture may condense on the optical pick-up lens inside this unit, one of the most crucial internal parts of the DVD video player.



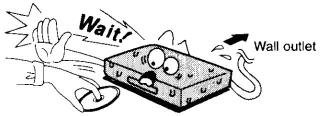
Moisture condensation occurs during the following cases.

- When you bring the DVD video player directly from a cold place to a warm place.
- When you use the DVD video player in a room where you just turned on the heater, or a place where the cold wind from the air conditioner directly hits the unit.
- In summer, when you use the DVD video player in a hot and humid place just after you move the unit from an air conditioned room.
- When you use the DVD video player in a humid place.


It's too warm!

Do not use the DVD video player when moisture condensation may occur.

If you use the DVD video player in such a situation, it may damage discs and internal parts. Remove the disc, connect the power cord of the DVD video player to the wall outlet, turn on the DVD video player, and leave it for two or three hours. After two or three hours, the DVD video player will have warmed up and evaporated any moisture. Keep the DVD video player connected to the wall outlet and moisture condensation will seldom occur.



Introduction

Table of Contents

Introduction

- SAFETY PRECAUTIONS 2
- IMPORTANT SAFETY INSTRUCTIONS 3-5
- Precautions 6
- Identification of Controls 8-11
  - Front Panel / Rear Panel / DVD display
  - Remote Control
  - Preparing the Remote Control
  - Operating with the Remote Control

Connections

- Connecting to a TV 12
- Connecting to an Audio System and TV with Color Difference Inputs 13
- Connecting to Optional Equipment 14, 15
  - Connecting to an Amplifier Equipped With a Dolby Digital Decoder
  - Connecting to an Amplifier Equipped With 5.1ch Audio Input
  - Connecting to an Amplifier Equipped With Dolby Pro Logic Surround
  - Connecting to an Amplifier Equipped With a DTS Decoder
  - Connecting to an Amplifier Equipped With an MPEG2 Audio Decoder
  - Connecting to an Amplifier Equipped With a Digital Audio Input

Basic Playback

- Playing a Disc 16-19
  - Basic Playback
  - Using the Shuttle Ring
  - Using the Jog Dial
  - Playing in Slow-Motion
  - Resuming Playback from the Same Location
- Locating a Specific Title, Chapter, or Track .. 20, 21
  - Locating a Title Using the Title Menu
  - Locating a Title
  - Locating a Specific Chapter or Track Directly
  - Locating a Specific Chapter or Track

Advanced Playback

- Playing From a Desired Location 22
  - Storing Locations in the Memory
  - Locating a Specific Location by Entering the Time
- Playing Repeatedly 23
  - Repeating a Title, Chapter, or Track
  - Repeating a Specific Segment
- Playing in a Favorite Order................................ 24
  - Setting Titles, Chapters, or Tracks in a Favorite Order
- Playing in Random Order.................................. 25
  - Playing Titles in Random Order
  - Playing Chapter or Tracks in Random Order
- Selecting 3D DNR Picture Enhancement / Selecting 3-D (N-2-2) Sound Enhancement 26
  - Selecting 3D DNR On/Off
  - Selecting 3-D (N-2-2) Sound Enhancement
- Zooming a Picture 27
  - Zooming a Picture
- Selecting the Camera Angle 28
  - Changing the Camera Angle
- Selecting a Language 29
  - Selecting a Playback Audio Setting
- Selecting Subtitles 30
  - Turning Subtitles On or Off
  - Selecting a Subtitle Language
- Using the On-Screen Display 31
  - Checking the Operational Status
  - Checking the Remaining Time and Setting Status

Function Setup

- Customizing the Function Settings 32-40
  - Selecting a Setting Category
  - LANGUAGE Setting
  - PICTURE Setting
  - AUDIO Setting
  - DISPLAY Setting
  - OPERATION Setting
- Table of Languages 41

Others

- Notes on Discs 42
  - Notes on Region Numbers
- Before Calling Service Personnel 43
- Specifications .... Back Cover

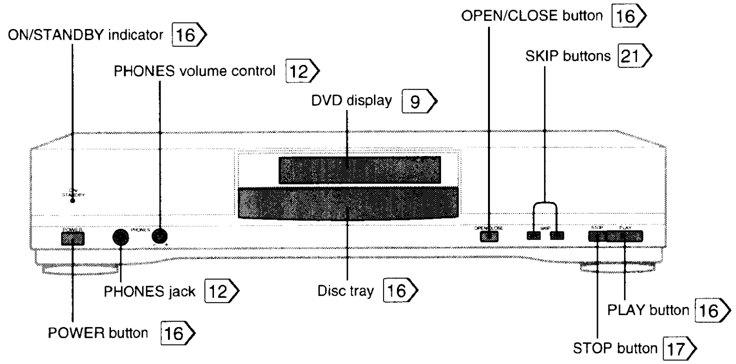
Introduction

Identification of Controls

See the page in ▷ for details.

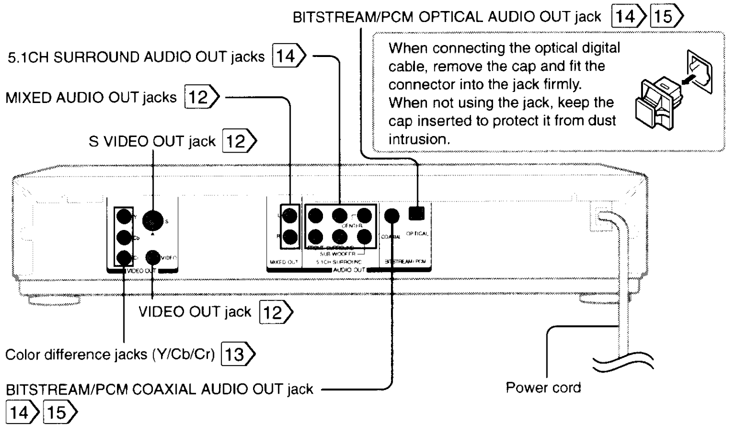
Front Panel / Rear Panel / DVD Display

Front Panel



ON/STANDBY indicator 16
PHONES volume control 12
DVD display 9
OPEN/CLOSE button 16
SKIP buttons 21
PHONES jack 12
POWER button 16
Disc tray 16
PLAY button 16
STOP button 17

Rear Panel



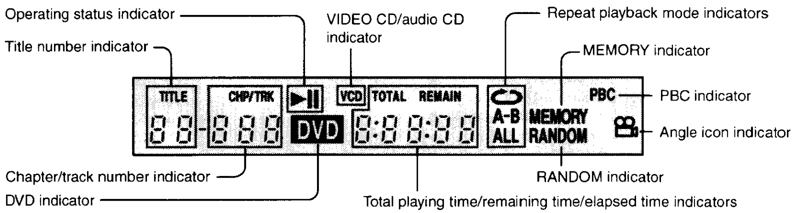
BITSTREAM/PCM OPTICAL AUDIO OUT jack 14 15
5.1CH SURROUND AUDIO OUT jacks 14
MIXED AUDIO OUT jacks 12
S VIDEO OUT jack 12
VIDEO OUT jack 12
Color difference jacks (Y/Cb/Cr) 13
BITSTREAM/PCM COAXIAL AUDIO OUT jack 14 15
Power cord

When connecting the optical digital cable, remove the cap and fit the connector into the jack firmly.
When not using the jack, keep the cap inserted to protect it from dust intrusion.

DVD Display

■ **Pressing the FL DIMMER button on the remote control turns the DVD display on or off.**

FL DIMMER On ↔ Off



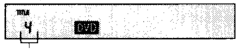
Operating status indicator
Title number indicator
VIDEO CD/audio CD indicator
Repeat playback mode indicators
MEMORY indicator
PBC indicator
Angle icon indicator
Chapter/track number indicator
DVD indicator
RANDOM indicator
Total playing time/remaining time/elapsed time indicators
TITLE
CHP/TRK
VCD
TOTAL
REMAIN
DVD
A-B
ALL
MEMORY
RANDOM
PBC

■ **The indicators vary depending on the kinds of discs you play.**

DVD Video disc

- When closing the disc tray:

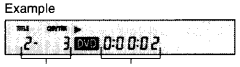
Example



Total number of titles

- During playback:

Example



2- 3
DVD
0:00:02

Playing chapter 3 in title 2

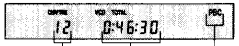
Elapsed time of the current title

Some DVD video discs may not display the chapter numbers or elapsed time.

VIDEO CD

- When closing the disc tray:

Example



12
0:46:30
PBC

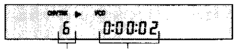
Total number of tracks

Total playing time of the disc

Lights up when using a PBC-equipped VIDEO CD.

- During playback:

Example



Playing track 6

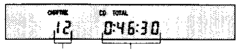
Elapsed time of the current track

Some VIDEO CDs may not display the track numbers or elapsed time.

Audio CD

- When closing the disc tray:

Example

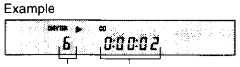


Total number of tracks

Total playing time of the disc

- During playback:

Example



Playing track 6

Elapsed time of the current track

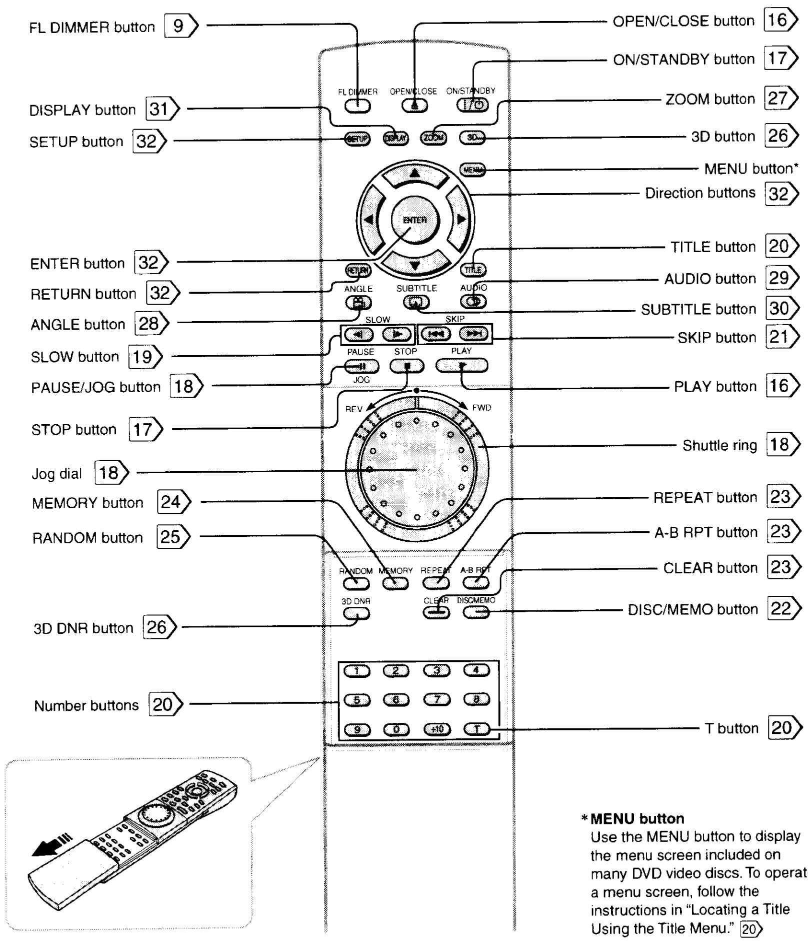
■ **Other indicators**

⟲	When playing back the same title, chapter or track repeatedly. 23
▶II	When playback is paused. 17
RANDOM	During random playback. 25
⟲ A-B	When playing back a specific segment repeatedly. (A-B repeat) 23
MEMORY	During memory playback. 24
⟲ ALL	When playing back the entire disc repeatedly. 23
🎥	When the camera angle can be changed. 28

Identification of Controls *(continued)*

The instructions in this manual describe the functions on the remote control. See the page in ▭ for details.

Remote Control

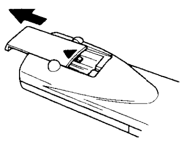

FL DIMMER button 9
DISPLAY button 31
SETUP button 32
ENTER button 32
RETURN button 32
ANGLE button 28
SLOW button 19
PAUSE/JOG button 18
STOP button 17
Jog dial 18
MEMORY button 24
RANDOM button 25
3D DNR button 26
Number buttons 20
OPEN/CLOSE button 16
ON/STANDBY button 17
ZOOM button 27
3D button 26
MENU button*
Direction buttons 32
TITLE button 20
AUDIO button 29
SUBTITLE button 30
SKIP button 21
PLAY button 16
Shuttle ring 18
REPEAT button 23
A-B RPT button 23
CLEAR button 23
DISC/MEMO button 22
T button 20
FL DIMMER
OPEN/CLOSE
ON/STANDBY
SETUP
DISPLAY
ZOOM
3D
MENU
ENTER
RETURN
TITLE
ANGLE
SUBTITLE
AUDIO
SLOW
SKIP
PAUSE
STOP
PLAY
JOG
REV
FWD
RANDOM
MEMORY
REPEAT
A-B RPT
3D DNR
CLEAR
DISC/MEMO
1
2
3
4
5
6
7
8
9
0
+10
T

***MENU button**
Use the MENU button to display the menu screen included on many DVD video discs. To operate a menu screen, follow the instructions in "Locating a Title Using the Title Menu." 20

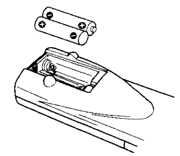
Preparing the Remote Control

Insert the batteries into the remote control so you can use it to operate the DVD video player.

1 **Open the cover.**

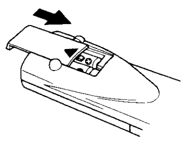


2 **Insert batteries (AA size).**



Make sure to match the + and – on the batteries to the marks inside the battery compartment.

3 **Close the cover.**



Notes on batteries

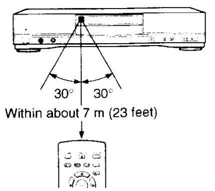
Improper use of batteries may cause battery leakage and corrosion.
To operate the remote control correctly, follow the instructions below.

- Do not insert batteries into the remote control in the wrong direction.
- Do not charge, heat, open, or short-circuit the batteries. Do not throw batteries into a fire.
- Do not leave dead or exhausted batteries in the remote control.
- Do not use different types of batteries together, or mix old and new batteries.
- If you do not use the remote control for a long period of time, remove the batteries to avoid possible damage from battery corrosion.
- If the remote control does not function correctly or if the operating range becomes reduced, replace all batteries with new ones.
- If battery leakage occurs, wipe the battery liquid from the battery compartment, then insert new batteries.

Operating with the Remote Control

This section shows you how to use the remote control.

Point the remote control at the remote sensor and press the buttons.


30°
30°
Within about 7 m (23 feet)

Distance:	About 7 m (23 feet) from the front of the remote sensor
Angle:	About 30° in each direction of the front of the remote sensor

* Do not expose the remote sensor of the DVD video player to a strong light source such as direct sunlight or other illumination. If you do so, you may not be able to operate the DVD video player via the remote control.

Notes on the remote control

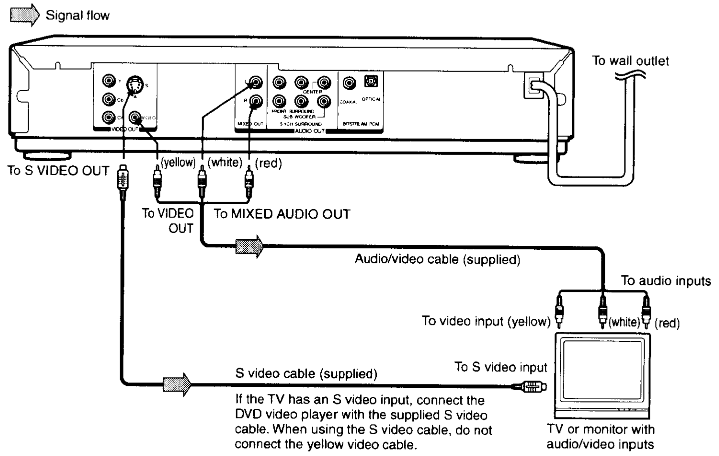
- Direct the remote control at the remote sensor of the DVD video player.
- Do not drop or give the remote control a shock.
- Do not leave the remote control near an extremely hot or humid place.
- Do not spill water or put anything wet on the remote control.
- Do not open the remote control.

Connecting to a TV

Connect the DVD video player to your TV.

Connecting to a TV

■ **Selecting the output sound**
From the on-screen displays, set the "Audio Out Select" to "Analog 2ch." 32 36


Signal flow
To wall outlet
To S VIDEO OUT
(yellow)
(white)
(red)
To VIDEO OUT
To MIXED AUDIO OUT
Audio/video cable (supplied)
To audio inputs
To video input (yellow)
(white)
(red)
S video cable (supplied)
To S video input
TV or monitor with audio/video inputs

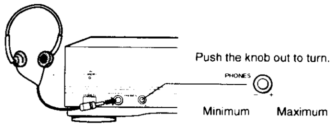
If the TV has an S video input, connect the DVD video player with the supplied S video cable. When using the S video cable, do not connect the yellow video cable.

Notes

- Refer to the owner's manual of the connected TV as well.
- When you connect the DVD video player to your TV, be sure to turn off the power and unplug both units from the wall outlet before making any connections.
- If your television set has one audio input, connect the DVD video player to a Y cable adapter (not supplied) and then connect to your TV.
- Connect the DVD video player to your TV directly. If you connect the DVD video player to a VTR, TV/VTR combination or video selector, the playback picture may be distorted as DVD video discs are copy protected.

Connecting headphones

Connect headphones to the PHONES jack on the front panel using a stereo plug.
Before connecting, temporarily turn down the volume with the PHONES volume control. Readjust to your preference when playback begins.

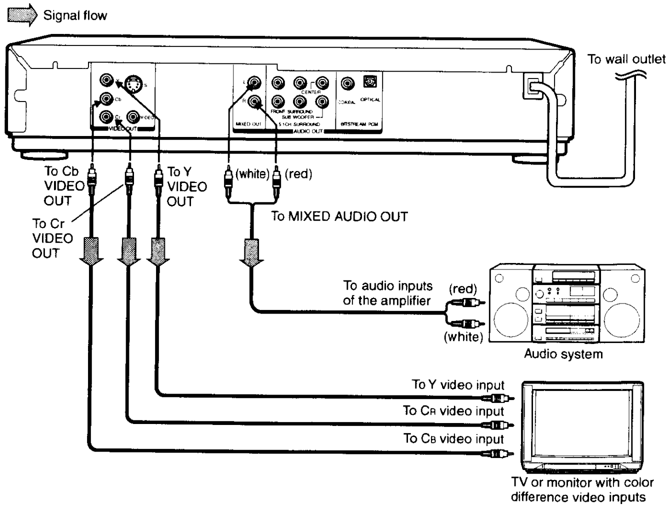

Push the knob out to turn.
PHONES
Minimum
Maximum

Connecting to an Audio System and TV with Color Difference Inputs

You can listen to the sound of discs in stereo and enjoy the enhanced picture quality of discs on a TV equipped with color difference inputs.

Connecting to an Audio System and TV with Color Difference Inputs

■ **Selecting the output sound**
From the on-screen displays, set the "Audio Out Select" to "Analog 2ch." 32 36


Signal flow
To wall outlet
To Cb VIDEO OUT
To Cr VIDEO OUT
To Y VIDEO OUT
(white)
(red)
To MIXED AUDIO OUT
To audio inputs of the amplifier
(red)
(white)
Audio system
To Y video input
To CR video input
To CB video input
TV or monitor with color difference video inputs

Color difference outputs/inputs
Some TVs or monitors are equipped with color difference inputs. Connecting to these inputs allows you to enjoy higher quality picture playback.
Actual labels for color difference inputs may vary depending on the TV manufacturer. (ex. Y, R-Y, B-Y or "Component video")
In some TVs or monitors, the color levels of the playback picture may be reduced slightly or the tint may change. In such a case, adjust the TV or monitor for optimum performance.

Notes

- Refer to the owner's manual of the connected equipment as well.
- When you connect the DVD video player to other equipment, be sure to turn off the power and unplug all of the equipment from the wall outlet before making any connections.
- If you place the DVD video player near a tuner or radio, the radio broadcast sound might be distorted. In this case, place the DVD video player away from the tuner and radio.
- The output sound of the DVD video player has a wide dynamic range. Be sure to adjust the receiver's volume to a moderate listening level. Otherwise, the speakers may be damaged by a sudden high volume sound.
- Turn off the amplifier before you connect or disconnect the DVD video player's power cord. If you leave the amplifier power on, the speakers may be damaged.

Connecting to Optional Equipment

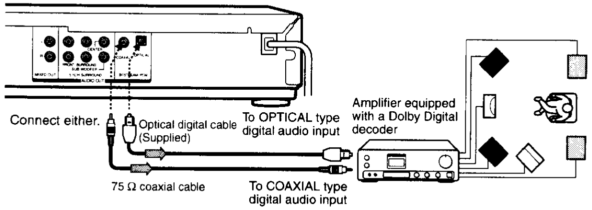
You can enjoy high quality dynamic sound by connecting the DVD video player to optional audio equipment.
For connection to your TV, see pages 12 and 13.
Select the proper connection type depending on your audio equipment.

■ : Front speaker
▯ : Center speaker
□ : Rear speaker
⇨ : Signal flow
□ : Sub woofer

Connecting to an Amplifier Equipped With a Dolby Digital Decoder

Dolby Digital
Dolby Digital is the surround sound technology used in theaters showing the latest movies, and is now available to reproduce this realistic effect in the home. You can enjoy motion picture and live concert DVD video discs with this dynamic realistic sound by connecting the DVD video player to a 5.1 channel amplifier equipped with a Dolby Digital decoder or Dolby Digital processor. If you have a Dolby Pro Logic Surround decoder, you will obtain the full benefit of Pro Logic from the same DVD movies that provide full 5.1-channel Dolby Digital soundtracks, as well as from titles with the Dolby Surround mark.

Manufactured under license from Dolby Laboratories. "Dolby", "Pro Logic" and the double-D symbol are trademarks of Dolby Laboratories. Confidential Unpublished Works. ©1992-1997 Dolby Laboratories, Inc. All rights reserved.

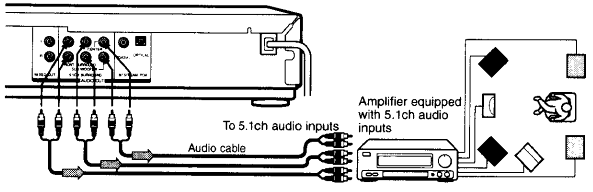

Connect either.
Optical digital cable (Supplied)
To OPTICAL type digital audio input
Amplifier equipped with a Dolby Digital decoder
75 Ω coaxial cable
To COAXIAL type digital audio input

- Use DVD video discs encoded via the Dolby Digital recording system.
- Make the following setting.

Setting	Select:	Page
"Audio Out Select"	"Bitstream"	36
Recording system	DD	29

Connecting to an Amplifier Equipped With 5.1ch Audio Inputs

5.1ch surround sound
The Dolby Digital decoder equipped with this DVD video player enables you to obtain the full benefit of 5.1 channel Dolby Digital sound tracks when you connect the DVD video player to a Dolby Digital ready amplifier equipped with 5.1 channel audio inputs.
Dolby Pro Logic Surround sound can be obtained also if its recording system is selected.


To 5.1ch audio inputs
Audio cable
Amplifier equipped with 5.1ch audio inputs

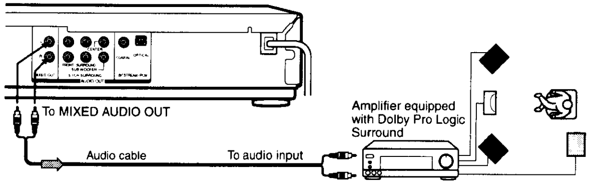
- Use DVD video discs encoded via the Dolby Digital recording system.
- Make the following setting.

Setting	Select:	Page
"Audio Out Select"	"Analog 6ch"	36
Recording system	DD	29

Connecting to an Amplifier Equipped With Dolby Pro Logic Surround

Dolby Pro Logic Surround
You can enjoy the dynamic realistic sound of Dolby Pro Logic Surround by connecting an amplifier and speaker system (right and left front speakers, a center speaker, and one or two rear speakers).

- **With an amplifier equipped with Dolby Digital**
  Connect the equipment the same way as described in "Connecting to an Amplifier Equipped With a Dolby Digital Decoder." Refer to that amplifier's owner's manual and set the amplifier so you can enjoy Dolby Pro Logic Surround sound.
- **With an amplifier not equipped with Dolby Digital**
  Connect the equipment as follows.


To MIXED AUDIO OUT
Audio cable
To audio input
Amplifier equipped with Dolby Pro Logic Surround

Connect one or two rear speakers.
The output sound from the rear speakers will be monaural even if you connect two rear speakers.

- Make the following setting.

Setting	Select:	Page
"Audio Out Select"	"Analog 2ch"	36

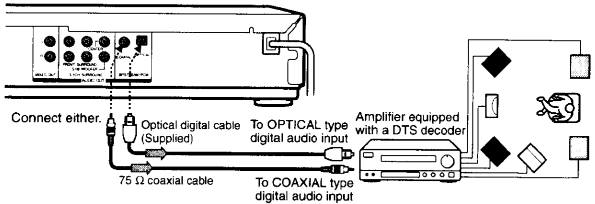
Note: Be sure to set "Audio Out Select" to "Analog 2ch" when you enjoy sounds of Dolby Pro Logic Surround using this connection.

Warning
- Do not set "Audio Out Select" to "Bitstream" from the menu 32 36 unless you are connecting (via the BITSTREAM/PCM AUDIO OUT jack) an AV decoder that has the Dolby Digital, Digital Theater Systems (DTS) or MPEG2 decoding function. High volume sound may damage your hearing as well as the speakers.
- When playing DTS-encoded discs (DVD video discs and audio CDs), excessive noise may be output from the analog stereo jacks. To avoid possible damage to the audio system, you should take proper precautions when the MIXED AUDIO OUT jacks of the DVD video player are connected to an amplification system. To enjoy DTS Digital Surround™ playback, an external 5.1 channel DTS Digital Surround™ decoder system must be connected to the BITSTREAM/PCM AUDIO OUT jack of the DVD video player.

Connecting to an Amplifier Equipped With a DTS Decoder

Digital Theater Systems (DTS)
DTS is a high quality surround technology used in theaters and now available for home use, on DVD video discs or audio CDs.
If you have a DTS decoder or processor, you can obtain the full benefit of 5.1 channel DTS encoded sound tracks on DVD video discs or audio CDs.

"DTS" and "DTS Digital Surround" are trademarks of Digital Theater Systems, Inc.

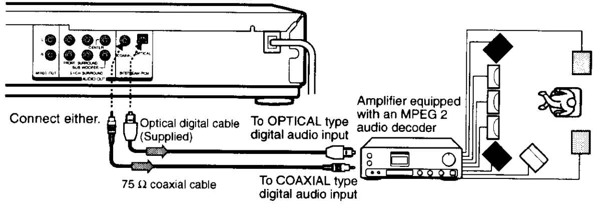

Connect either.
Optical digital cable (Supplied)
To OPTICAL type digital audio input
Amplifier equipped with a DTS decoder
75 Ω coaxial cable
To COAXIAL type digital audio input

- Use DVD video discs or audio CDs encoded via the DTS recording system.
- Make the following setting.

Setting	Select:	Page
"Audio Out Select"	"Bitstream"	36
Recording system	DTS	29

Connecting to an Amplifier Equipped With an MPEG 2 Audio Decoder

MPEG 2 sound
You can enjoy motion picture and live concert DVD video discs with dynamic realistic sound by connecting a 6 or 8 channel amplifier equipped with an MPEG 2 audio decoder or MPEG 2 audio processor.

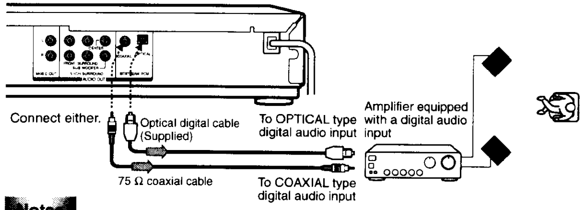

Connect either.
Optical digital cable (Supplied)
To OPTICAL type digital audio input
Amplifier equipped with an MPEG 2 audio decoder
75 Ω coaxial cable
To COAXIAL type digital audio input

- Make the following setting.

Setting	Select:	Page
"Audio Out Select"	"Bitstream"	36
Recording system	MPEG	29

Connecting to an Amplifier Equipped With a Digital Audio Input

2 Channel Digital Stereo
You can enjoy the dynamic sound of 2 Channel Digital Stereo by connecting an amplifier equipped with a digital audio input and speaker system (right and left front speakers).


Connect either.
Optical digital cable (Supplied)
To OPTICAL type digital audio input
Amplifier equipped with a digital audio input
75 Ω coaxial cable
To COAXIAL type digital audio input

- Make the following setting.

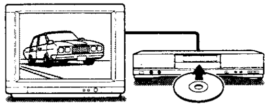
Setting	Select:	Page
"Audio Out Select"	"PCM"	36

Notes

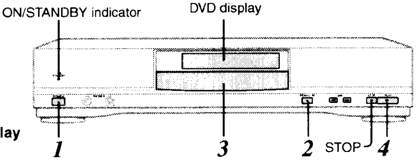
- DO NOT connect the BITSTREAM/PCM AUDIO OUT jack of the DVD video player to the AC-3 RF input of a Dolby Digital Receiver. This input on your A/V Receiver is reserved for Laserdisc use only and is incompatible with the BITSTREAM/PCM AUDIO OUT jack of the DVD video player.
- Connect the BITSTREAM/PCM AUDIO OUT jack of the DVD video player to the "DIGITAL" or "COAXIAL" input of a Receiver or Processor.
- Refer to the owner's manual of the connected equipment as well.
- When you connect the DVD video player to other equipment, be sure to turn off the power and unplug all of the equipment from the wall outlet before making any connections.
- The output sound of the DVD video player has a wide dynamic range. Be sure to adjust the receiver's volume to a moderate listening level. Otherwise, the speakers may be damaged by a sudden high volume sound.
- Turn off the amplifier before you connect or disconnect the DVD video player's power cord. If you leave the amplifier power on, the speakers may be damaged.

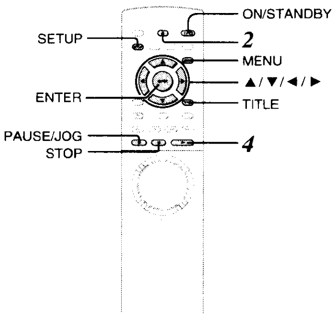
Playing a Disc

CAUTION
Keep your fingers well clear of the disc tray as it is closing. Neglecting to may cause serious personal injury.



This section shows you the basics on how to play a disc.





■ **To obtain a higher quality picture**
Occasionally, some picture noise not usually visible during a normal broadcast may appear on the TV screen while playing a DVD video disc because the high resolution pictures on these discs include a lot of information. While the amount of noise depends on the TV you use with this DVD video player, you should generally reduce the sharpness adjustment on your TV when viewing DVD video discs.

■ **About DVD VCD CD**
The DVD VCD CD icons on the heading bar show the playable discs for the function described under that heading.
DVD : You can use this function with DVD video discs.
VCD : You can use this function with VIDEO CDs.
CD : You can use this function with audio CDs.

Basic Playback

DVD VCD CD

■ **Preparations**

- When you want to view a disc, turn on the TV and select the video input connected to the DVD video player.
- When you want to enjoy the sound of discs from the audio system, turn on the audio system and select the input connected to the DVD video player.
- For connection details, see "Connections." 12 – 15

1 POWER Press POWER on the front panel.

The DVD video player turns on and the ON/STANDBY indicator on the player illuminates.

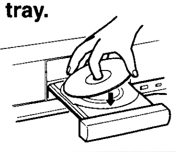
When the DVD video player is turned on for the first time, an initial set-up menu screen appears. See below to make the settings before proceeding to step *2*.

Note
When you press the ON/STANDBY button on the remote control while the power is on, the DVD video player enters the standby mode.

2 OPEN/CLOSE ▲ Press OPEN/CLOSE.

The disc tray opens.

3 Place the disc on the disc tray.



With the playback side down

Notes

- There are two different disc sizes. Place the disc in the correct guide on the disc tray. If the disc is out of the guide, it may damage the disc and cause the DVD video player to malfunction.
- Do not place anything except DVD video discs, VIDEO CDs, or audio CDs on the disc tray.

4 PLAY ▶ Press PLAY.

The disc tray closes and playback starts.

If you insert a DVD video disc that contains a title menu, or insert a PBC (Playback Control)-equipped VIDEO CD, a menu screen may appear. See "To start playback from the menu screen." 17
To start playback of a PBC-equipped VIDEO CD from the menu screen, set "PBC" to "On" via the on-screen displays. 32 40

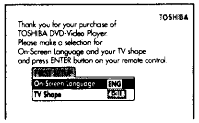
Notes

- For PBC (Playback Control) of VIDEO CDs, see "On VIDEO CD." 42
- You may need to press the TITLE or MENU button on the remote control to display the disc menu screen (depending on the actual DVD video discs.)

■ **First Setup screen**
From this screen, make the following settings.

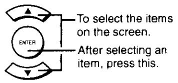
On-screen Language: Select the appropriate on-screen language.

TV Shape: Select a picture size according to the aspect ratio of your TV. (See 35 for details.)



TOSHIBA
Thank you for your purchase of TOSHIBA DVD-Video Player.
Please make a selection for On-Screen Language and your TV shape and press ENTER button on your remote control.

On-Screen Language	ENG
TV Shape	4:3LB

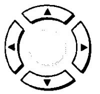

ENTER
To select the items on the screen.
After selecting an item, press this.

1 Press the ▲ / ▼ buttons to select "On-Screen Language," and press the ENTER button.
The languages are listed.
2 Select a language using the ▲ / ▼ buttons, and press the ENTER button.
3 Press the ▼ button to select "TV Shape," and press the ENTER button.
4 Select a picture size (see 35) using the ▲ / ▼ buttons, and press the ENTER button.
5 Finally press the SETUP button.
All your selections are entered and the First Setup screen disappears.

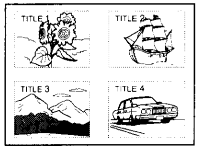
To change your settings, see "Customizing the Function Settings." 32

To start playback from the menu screen

1 **Press ▲ / ▼ / ◀ / ▶ or the number buttons to select the title you want.**



e.g.



2 **Press ENTER.**

ENTER

The DVD video player begins playback from the selected title.

- When not using the menu screen of a PBC-featured VIDEO CD, set "PBC" to "Off" via the on-screen displays. 32 40

To pause playback (still mode)

PAUSE II JOG **Press PAUSE/JOG during playback.**

To resume normal playback, press the PLAY button.

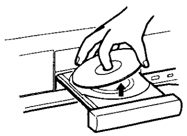
- The sound is muted during still mode.

To stop playback

STOP ■ **Press STOP.**

To remove the disc

OPEN/CLOSE ▲ **Press OPEN/CLOSE.**



Remove the disc after the disc tray opens completely.

- Be sure to press the OPEN/CLOSE button to close the disc tray after you remove the disc.

Notes

- Do not move the DVD video player during playback. Doing so may damage the disc.
- Use the OPEN/CLOSE button on the remote control or DVD video player to open and close the disc tray. Do not push the disc tray while it is moving. Doing so may cause the DVD video player to malfunction.
- Do not push up on the disc tray or put any objects other than discs on the disc tray. Doing so may cause the DVD video player to malfunction.
- In many instances, a menu screen will appear after playback of a movie is completed. Prolonged display of an on-screen menu may damage your television set, permanently etching that image onto its screen. To avoid this, be sure to press the STOP button on your remote control once the movie is completed.
- If you pause a picture and leave it still for a long while, the screen saver of the DVD video player automatically appears (when "Screen Saver" is set to "On" 38). To turn off the screen saver, press the PLAY button.

About This Owner's Manual

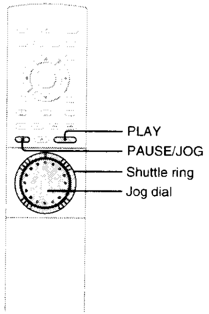
This owner's manual explains the basic instructions of this DVD video player. Some DVD video discs are produced in a manner that allows specific or limited operation during playback. As such, the DVD video player may not respond to all operating commands. This is not a defect in the DVD video player. Refer to the instruction notes of discs.
"⊘" may appear on the TV screen during operation. A "⊘" means that the operation is not permitted by the DVD video player or the disc.

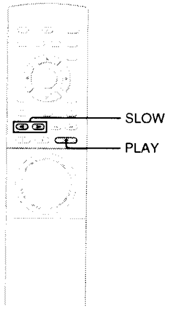
Playing a Disc

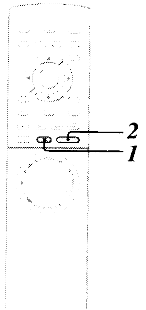
(continued)

Fast reverse Fast forward | Frame by Frame | Slow-Motion | Resuming

You can play discs at various speeds, and resume playback from the location where you stopped playback.



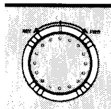




Using the Shuttle Ring

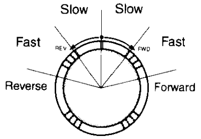
DVD VCD CD

You can play discs at various speeds by turning the shuttle ring.



Turn the shuttle ring during playback.

The playback speed can be controlled by the extent of the wheel rotation.



To resume normal playback

Release the shuttle ring.

Notes

- The playback speed may differ depending on the disc.
- If you slow down the playback speed of a DVD video disc by turning the ring leftward, the DVD video player performs reverse frame playback. The reverse frame playback may advance more rapidly than in the forward direction.

Using the Jog Dial

DVD VCD

You can advance or reverse a picture frame by frame from the jog dial.

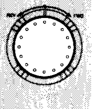
1 PAUSE ❚❚ JOG

During playback, press PAUSE/JOG on the remote control.

The picture pauses.

"Jog On" appears when "On-Screen Displays" is set to "On." 32 38

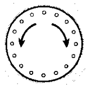
2



Turn the jog dial.

Prolonged absence of operation may automatically cancel this function. If it occurs, start over again from step *1*.

Rightward: To advance the picture frame by frame.
Leftward: To reverse the picture frame by frame. (Only when using a DVD video disc.)



To resume normal playback

PLAY ► **Press PLAY.**

Notes

- The sound is muted during frame by frame playback.
- The reverse frame playback may advance more rapidly than in the forward direction.

Playing in Slow-Motion

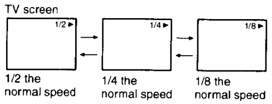
DVD VCD

You can play a disc in slow-motion.

SLOW ◄I I►

Press SLOW I► during playback.

Each time you press the SLOW I► button, the slow-motion speed changes.



SLOW ◄I I►

If you press SLOW ◄I during playback, you can view the picture in reverse slow-motion. (Only when using a DVD video disc.)

Each time you press the SLOW ◄I button, the slow-motion speed changes.

To resume normal playback

PLAY ► **Press PLAY.**

Note

The sound is muted during slow-motion playback.

Resuming Playback from the Same Location

DVD VCD CD

You can stop playback and resume playback later from the same location on the disc.

1 STOP ■

Press STOP at the location where you want to interrupt playback.

The DVD video player memorizes the location where playback is stopped.

2 PLAY ►

Press PLAY.

The DVD video player resumes playback from the location where you stopped playback.

To start playback from the beginning regardless of the location where you stopped playback

1 **Press STOP twice.**

STOP ■ The DVD video player's memory is cleared.

2 **Press PLAY.**

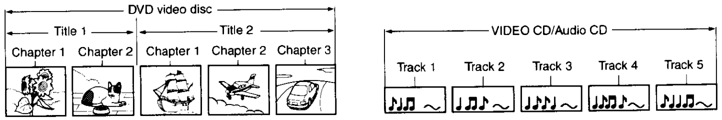
PLAY ► If you are using a DVD video disc, playback starts from the beginning of the current title. If you are using a VIDEO CD/audio CD, playback starts from the beginning of the disc.

- If you want to return to the beginning of a DVD video disc, open and close the disc tray once with the OPEN/CLOSE button before pressing the PLAY button.

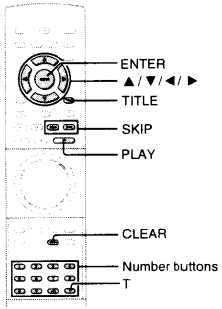
Notes

- The DVD video player's memory is also cleared when:
  - you turn the power off by pressing the POWER button on the front panel (the ON/STANDBY indicator turns off), or you unplug the DVD video player from the wall outlet after you stop playback.
  - you open the disc tray.
  - you adjust/change parental lock 39 or select a disc menu language setting 34.
- There may be a difference in the location where playback resumes depending on the disc.
- Settings you changed using the menu screens while the DVD video player keeps a location in the memory may function only after the memory is cleared.

Locating a Specific Title, Chapter, or Track



Normally, DVD video discs are divided into titles, and the titles are sub-divided into chapters. VIDEO CDs and audio CDs are divided into tracks. You can quickly locate any specific title, chapter, or track.



Locating a Title Using the Title Menu

DVD

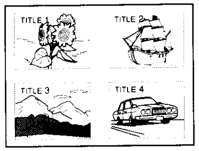
If a DVD video disc contains a title menu, you can locate a specific title using the title menu function.

1 TITLE

Press TITLE.

The title menu appears on the TV screen.

Example of a title menu



2

Press ▲/▼/◄/► to select the title you want.

If the titles in the title menu are assigned a number, you can directly locate a specific title by pressing its designated number with the **number buttons**.

3

Press ENTER.

The DVD video player starts playback from chapter 1 of the selected title.

Notes

- The instructions above describe basic procedures which may vary depending on the contents of the DVD video disc. If different instructions appear on the TV screen, follow those instructions.
- If you display the title menu during playback and press the TITLE button again without selecting any title, the DVD video player may resume playback from the point where you first pressed the TITLE button.

Locating a Title

DVD

If a DVD video disc contains title numbers, you can locate a specific title by directly selecting a title number.

1 T

Press T.

Make sure that the space next to Title is highlighted.

e.g.

Title: ■
Chapter: 1

2

Press the corresponding number buttons for the title you want.

e.g. To select title 2

2

Title: ■
Chapter: 1

To select title 12

1 → 2

Title: ■
Chapter: 1

3 PLAY ►

Press PLAY.

The DVD video player starts playback from chapter 1 of the selected title.

Notes

- You can shift the highlighted space between Title and Chapter by pressing the ▲ / ▼ buttons.
- Pressing the CLEAR button resets the Title and Chapter numbers. To clear the Title, Chapter display, press the T button several times.
- You can select a preferred language for on-screen displays. 32 34

Locating a Specific Chapter or Track Directly

DVD VCD CD

If you know the chapter or track number you want to play, you can locate it directly.

1 T

Press T.

Skip steps *1* and *2* if you are using a VIDEO CD/audio CD.

(DVD video disc)

Title: ■
Chapter: 1

2

Press ▼ to highlight the space next to Chapter.

(DVD video disc)

Title: 1
Chapter: ■

3

Press the corresponding number buttons of the chapter or track you want.

You can use the +10 button to select numbers from 10 through 99.

e.g. To select chapter or track 25

- 2 → 5
- +10 → +10 → 5

(DVD video disc)

Title: 1
Chapter: ■

(VIDEO CD/Audio CD)

Track: ■

4 PLAY ►

Press PLAY.

The DVD video player starts playback from the selected chapter or track.

To select a title and chapter number at the same time

e.g. To select chapter 25 in title 2

T → 2 → ▼ → 2 → 5 → PLAY ►

Title number — Chapter number

Title: 2
Chapter: ■

Note

Pressing the CLEAR button resets the Title and Chapter numbers. To clear the Title, Chapter display, press the T button several times.

Locating a Specific Chapter or Track

DVD VCD CD

You can locate consecutive chapters or tracks.

SKIP ⏮ ⏭

Press SKIP ⏮ or ⏭ repeatedly to display the chapter or track number you want.

The DVD video player starts playback from the selected chapter or track.

⏮: To locate preceding chapters or tracks
When you press the SKIP ⏮ button, the DVD video player starts playback from the beginning of the current chapter or track.
When you press the SKIP ⏮ button twice, the DVD video player starts playback from the beginning of the preceding chapter or track.

⏭: To locate succeeding chapters or tracks

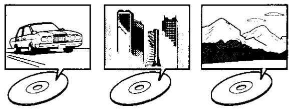
If you press and hold the SKIP ⏮ or ⏭ button during playback, the DVD video player performs fast reverse or fast forward playback. You can select the speed by pressing the button further.
To locate chapters or tracks during fast reverse or fast forward playback, first press the PLAY button to resume normal playback, and then use the SKIP ⏮ or ⏭ button.

Notes

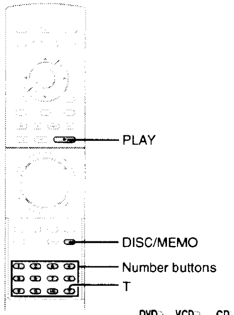
- Some titles may not display chapter numbers.
- When you set "Title Stop" to "Off" 40, you can access chapters in another title. If you go back to the preceding title by pressing the SKIP ⏮ button, the DVD video player locates the first chapter of the title. When "Title Stop" is set to "On," you can access chapters only within the current title.

Advanced Playback

Playing From a Desired Location



You can play a disc from the desired location.



Storing Locations in the Memory

DVD

The DVD video player memorizes a "bookmark" location on a disc, so that you can start playback from there later.

DISC/MEMO

Press DISC/MEMO at the location where you want to start playback later.

The DVD video player memorizes the "bookmark" location.

Disc Memory Set

The DISC/MEMO button can be pressed also while you are playing in slow-motion or the picture is pausing.

To start playback from the location you stored

DISC/MEMO

Insert the disc that contains the location you stored, and press DISC/MEMO during stop.

Some discs may be played automatically after inserted. In such a case, first stop playback by pressing the STOP button.

The DVD video player starts playback adjusting the picture quality according to a memory number 36 regardless of the current picture quality setting, since the number has been also memorized as well as the location.

Notes

- The DVD video player memorizes only one location on each side of a DVD video disc. It has the capability to memorize 3 different locations (eg. 3 single sided discs). Storing a fourth memory location erases the first.
- Storing a new location erases the old one of the disc.
- If you start playback of a DVD video disc equipped with the parental lock feature, after changing the parental lock level 39 on the DVD video player, the display of the parental lock level may return to the previous one. In this case, set the parental lock level back to it.
- Some discs or scenes (especially menu screens included on the disc) may not permit this operation.

Locating a Specific Location by Entering the Time

DVD VCD CD

You can locate a specific location by entering its corresponding time (hours, minutes, seconds).

1 T

Press T twice.

You may have to press further depending on the disc. Press the button repeatedly until the following indication appears.

Time

2

Press the number buttons to enter the time.

e.g. 1 → 2 → 5 → 3 → 0

Time

3 PLAY ►

Press PLAY.

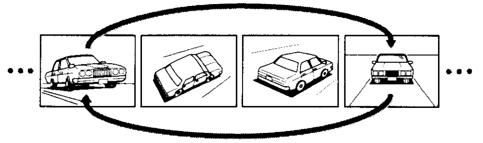
The DVD video player starts playback from the desired location.

Notes

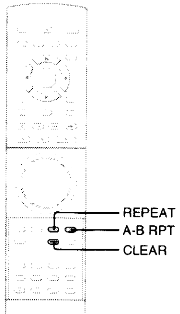
- Some discs may not respond to this process.
- Some scenes may not be located precisely as you specified.
- This method for accessing specific locations is available only within the current title of the DVD video disc or within the current track of the VIDEO CD/audio CD.

Advanced Playback

Playing Repeatedly



You can play a specific title, chapter, track, or segment repeatedly. (Title repeat, chapter/track repeat, A-B repeat)



Repeating a Title, Chapter, or Track

DVD VCD CD

You can play the same title, chapter, or track repeatedly. (Title, chapter/track repeat)

1

Select the title, chapter, or track you want to repeat. 20 21

2 REPEAT

Press REPEAT.

Each time you press the REPEAT button, the repeat mode changes as follows.

- DVD video disc

Chapter Repeat — Repeats the same chapter.
↓
Title Repeat — Repeats the same title.
↓
Repeat Off — Resumes normal playback.

- VIDEO CD/audio CD

Track Repeat — Repeats the same track.
↓
All Repeat — Repeats the entire disc.
↓
Repeat Off — Resumes normal playback.

To resume normal playback

CLEAR

Press CLEAR.

Note

Some discs may not permit repeat operation.

Repeating a Specific Segment

DVD VCD CD

You can play a specific segment repeatedly. (A-B repeat)

1 A-B RPT

Press A-B RPT at the beginning of the segment (point A) you want to play repeatedly.

A-

2 A-B RPT

Press A-B RPT again at the end of the segment (point B).

A-B

The DVD video player automatically returns to point A and starts repeat playback of the selected segment (A-B).

To resume normal playback

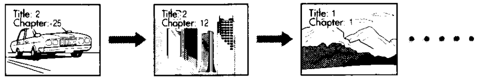
CLEAR

Press CLEAR.

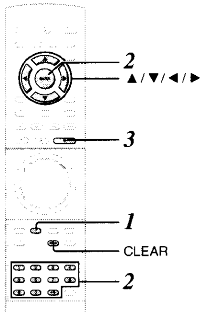
Notes

- Some discs may not permit A-B repeat operation.
- You cannot set the A-B repeat function for a segment that includes multiple camera angles.
- You can specify a segment only within the current title.
- There may be a slight difference between point A and the location where playback actually resumes depending on the disc.

Playing in a Favorite Order



You can combine your favorite titles, chapters, or tracks and play them in any order. You can program up to 28 selections into the memory. (Memory playback)



Setting Titles, Chapters, or Tracks in a Favorite Order

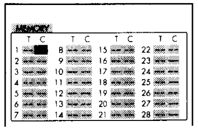
DVD VCD CD

The DVD video player automatically plays titles, chapters, or tracks in the order you program.

1 MEMORY

Insert a disc and press MEMORY during stop.

The following menu appears.


MEMORY

	T	C		T	C		T	C		T	C
1	--	■	8	--	--	15	--	--	22	--	--
2	--	--	9	--	--	16	--	--	23	--	--
3	--	--	10	--	--	17	--	--	24	--	--
4	--	--	11	--	--	18	--	--	25	--	--
5	--	--	12	--	--	19	--	--	26	--	--
6	--	--	13	--	--	20	--	--	27	--	--
7	--	--	14	--	--	21	--	--	28	--	--

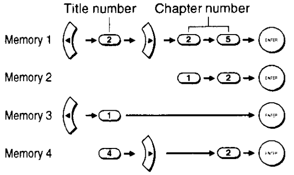
T: Title number C: Chapter number

2 ENTER

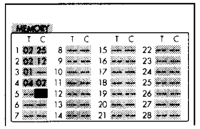
Select the items in the order you want by pressing the number buttons, then ENTER for each item.

Each time you press the ◀ / ▶ button, the - - indication next to T and C is highlighted in turn. Highlight where you want to enter, then press the number buttons.

e.g. To play chapter 25 in title 2, chapter 12 in title 2, all the chapters in title 1, and chapter 2 in title 4.



To select tracks from a VIDEO CD/audio CD in order, press the **number buttons** for the track, then press the **ENTER** button for each selection you want.


MEMORY

	T	C		T	C		T	C		T	C
1	02	25	8	--	--	15	--	--	22	--	--
2	02	12	9	--	--	16	--	--	23	--	--
3	01	--	10	--	--	17	--	--	24	--	--
4	04	02	11	--	--	18	--	--	25	--	--
5	--	■	12	--	--	19	--	--	26	--	--
6	--	--	13	--	--	20	--	--	27	--	--
7	--	--	14	--	--	21	--	--	28	--	--

To select another chapter in the same title, you do not need to select the title number.

3 PLAY

Press PLAY while the MEMORY menu appears on the TV screen.

The DVD video player starts memory playback.

To change the programmed selections

1 While the MEMORY menu appears on the TV screen, press ▲ / ▼ to move the highlighted bar to the item you want to change.
2 Change the selection following the instructions in step *2*.

To cancel the programmed selections

1 While the MEMORY menu appears on the TV screen, press ▲ / ▼ to move the highlighted bar to the item you want to cancel.
2 Press the CLEAR button.

To resume normal playback from memory playback

CLEAR **Press CLEAR.**

The MEMORY indicator disappears.

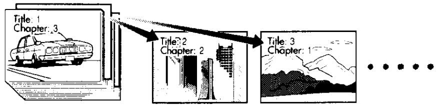
To program during playback

If you press the MEMORY button during playback, a menu appears to accept your programming.
If you further press the DISPLAY button, you can display the MEMORY menu also. Follow steps *2* and *3*.

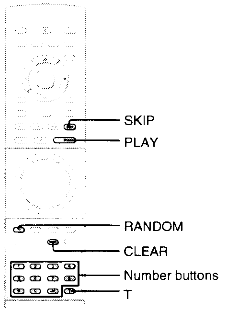
Notes

- Some discs may not permit memory playback operation.
- If you press the REPEAT button during memory playback, the DVD video player repeats the current memory playback.
- You cannot select title, chapter, and track numbers not included on the disc.
- If you press the MEMORY or RETURN button while the MEMORY menu appears on the TV screen, the MEMORY menu disappears.
- The programmed selections will be cleared when:
  - you turn off the DVD video player, or
  - you remove the disc.

Playing in Random Order



You can play titles, chapters within a title, or tracks in random order. (Random playback)



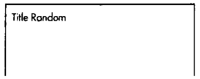
Playing Titles in Random Order

DVD

The DVD video player automatically selects the titles in a DVD video disc and plays them randomly.

1 RANDOM

Press RANDOM twice during stop.


Title Random

If you press the RANDOM button during playback, the DVD video player automatically starts random playback after finishing the current title.

2 PLAY

Press PLAY.

The DVD video player starts random playback.

Press the PLAY button within about 5 seconds after you press the RANDOM button.

To resume normal playback

CLEAR **Press CLEAR.**

Notes

- Some discs may not permit random playback operation.
- You cannot use the random playback function in conjunction with the memory playback function.

Playing Chapters or Tracks in Random Order

DVD VCD CD

The DVD video player automatically selects chapters within a title, or tracks in a VIDEO CD/audio CD, and plays them randomly.

1

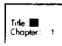
Press the appropriate number buttons for the title which contains the chapters you want to play in random order.

Skip this step if you are using a VIDEO CD/audio CD.

e.g. To play the chapters in title 2 in random order

(DVD video disc)

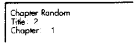
T → 2


Title ■
Chapter 1

2 RANDOM

Press RANDOM during stop.

(DVD video disc)


Chapter Random
Title 2
Chapter 1

(VIDEO CD/audio CD)

Track Random
Track ■

If you press the RANDOM button during playback, the DVD video player automatically starts random playback after finishing the current chapter or track.

3 PLAY

Press PLAY.

The DVD video player starts random playback.

Press the PLAY button within about 5 seconds after you press the RANDOM button.

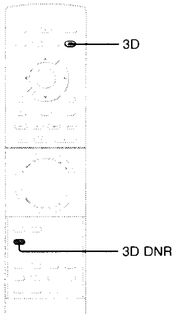
To resume normal playback

CLEAR **Press CLEAR.**

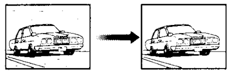
Notes

- Some discs may not permit random playback operation.
- You cannot use the random playback function in conjunction with the memory playback function.
- If you press the SKIP ▶▶I button during random playback, the DVD video player goes to another chapter or track and starts random playback.

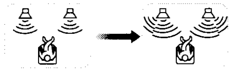
Selecting 3D DNR Picture Enhancement / Selecting 3-D (N-2-2) Sound Enhancement



3D DNR



3-D (N-2-2) sound playback



You can enhance picture quality during playback. (3D DNR)
You can enjoy virtual surround sound. (3-D (N-2-2) sound playback)

Selecting 3D DNR On/Off

DVD VCD

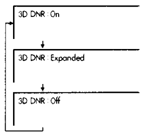
You can view a picture with less video noise.

3D DNR

Press 3D DNR during playback.

The current setting appears.

Each time you press the 3D DNR button, the level changes as follows.



Normal level

Expanded level

Off

3D DNR: Three Dimension Digital Noise Reduction

Notes

- Actual picture enhancement may vary depending on the quality of the disc.
- While the expanded level can provide additional improvement in the reduction of noise in the video signal, it may produce undesirable picture artifacts on some discs. Should this occur, select a more appropriate 3D DNR level (off or normal).
- Depending on the disc, some kinds of picture details may be lost by the picture enhancement.

Selecting 3-D (N-2-2) Sound Enhancement

DVD VCD CD

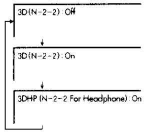
You can enjoy expansive surround type effects from two speakers.

3D

Press 3D during playback.

The current setting appears.

Each time you press the 3D button, the level changes as follows.



Off

Normal

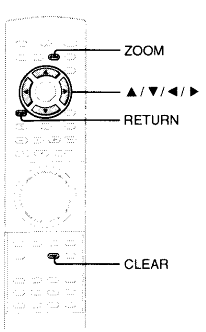
This level is designed especially for headphone listening.

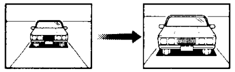
Notes

- You may sense a difference in volume between normal and 3-D (N-2-2) enhanced sound.
- 3-D (N-2-2) sound enhancement may not function (or may not be realized) depending on the sound output setting or recording system 29.
- If 3-D (N-2-2) sound enhancement is on, Dolby Pro Logic Surround may not function on output sounds at all, or may function differently than usual.

Spatializer® 3-Dimensional Sound Processing provided by Desper Products. Inc.
Certain audio features of this product manufactured under a license from Desper Products, Inc., Spatializer® and the circle-in-square device are trademarks owned by Desper Products, Inc.

Zooming a Picture





You can magnify areas within a picture.

Zooming a Picture

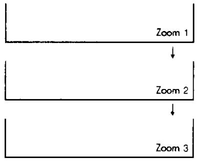
DVD

You can zoom in on a picture and shift the zooming point as well.

ZOOM

Press ZOOM during normal, slow or still playback.

If you further press the ZOOM button repeatedly, the magnification level increases.



RETURN

To reduce the magnification level, press the RETURN button.

If you press the ▲ / ▼ / ◀ / ▶ buttons, the zoom point shifts.
When the zoom point reaches an edge of the picture, the color of "Zoom" changes.

CLEAR

Pressing the CLEAR button restores the zoom point to the center of the picture.

To resume normal playback

ZOOM

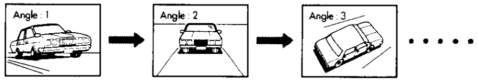
Press ZOOM repeatedly so that "Zoom" disappears.

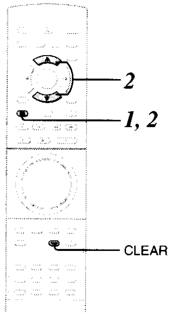
Notes

- Some discs may not respond to zoom feature.
- During some scenes, the buttons may not work as described above.
- Zooming does not work on subtitles or menu screens included on DVD video discs.
- During zoom playback, the ▲ / ▼ / ◀ / ▶ buttons cannot work on menu screens included on the DVD video discs. If you want to view the menu screens, cancel the zoom playback.
- The magnification level varies depending on the picture size you select. 32 35

Advanced Playback

Selecting the Camera Angle





You can select a preferred camera angle to watch a scene.

Changing the Camera Angle

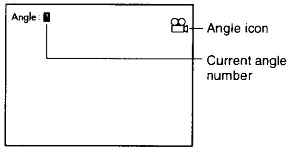
DVD

If the scene was recorded from multiple angles, you can easily change the camera angle of the scene you are watching.

1 ANGLE

Press ANGLE while playing a scene recorded with multiple angles.

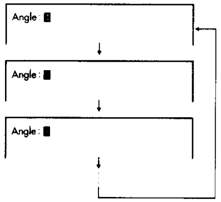
While playing a scene recorded with multiple angles, the angle icon (🎥) appears in the DVD display and on the TV screen.
Press the ANGLE button while the angle icon is displayed.



2 ANGLE

Press ANGLE or ▲ while the angle number appears on the TV screen.

Each time you press the ANGLE or ▲ button, the camera angle changes.



▼ : Cycles backwards

You can change the camera angle directly by pressing the number buttons corresponding to its angle number instead of using the ▲ / ▼ buttons.

To turn off the angle number indication

CLEAR

Press CLEAR.

To disable the angle icon display on the TV

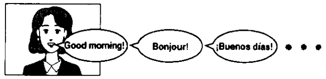
From the on-screen displays, set "On-Screen Displays" to "Off." 32 38
Monitor the DVD display when you want to change the camera angle.

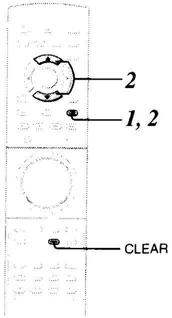
Notes

- You can change the camera angle during still playback. The camera angle changes to the new setting when you resume normal playback.
- If you pause a picture immediately after changing a camera angle, the resumed playback picture may not display the new camera angle.

Advanced Playback

Selecting a Language


Good morning!
Bonjour!
¡Buenos dias!
• • •



You can select a preferred language.

Selecting a Playback Audio Setting

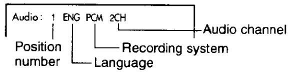
DVD

You can select a preferred language and sound recording system from those included on the DVD video disc.

1 AUDIO

Press AUDIO during playback.

The current audio setting appears for about 3 seconds.



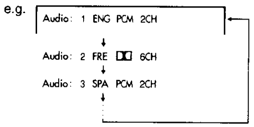
The abbreviation of the language appears instead of the language name. Refer to the list of languages and their abbreviations. 41

2 AUDIO

Press AUDIO or ▲ while the audio setting appears on the TV screen.

Each time you press the AUDIO or ▲ button, the audio settings included on the DVD video disc change.

e.g.



▼ : Cycles backwards

To turn off the audio setting display

CLEAR

Press CLEAR.

About recording systems

This DVD video player uses the Dolby Digital, DTS, MPEG2 and PCM recording systems and cannot play DVD video discs recorded in any other recording system.

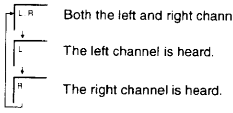
Dolby Digital 5.1 Channel is displayed as "DD 6CH."

Selecting sound channels of VIDEO CDs

A VIDEO CD may have left and right sound channels and contain sounds or languages on each. You can switch these two channels to hear a preferred sound or language.

AUDIO

During playback, press AUDIO repeatedly to select the sound channel.


L R
Both the left and right channels are heard.
L
The left channel is heard.
R
The right channel is heard.

Notes

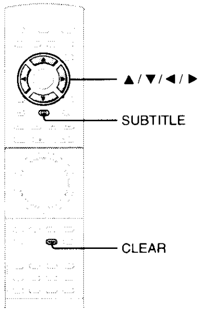
- Some discs allow you to change audio selections only via the disc menu. If this is the case, press the MENU button and choose the appropriate language from the selections on the disc menu.
- When you turn on the DVD video player or replace a disc, player returns to the initial default setting. 34
When you select a sound track which is not included on the disc, the DVD video player plays a prior sound track programmed on the disc.

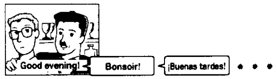
Output sound conversion table (sampling frequency/quantization bit)

Discs	Sound recording system		Audio selection from the menu screen 32 36 and output jacks on the rear panel							
			Bitstream		Analog 6ch		Analog 2ch		PCM	
			BITSTREAM/PCM jack	MIXED AUDIO OUT jacks	BITSTREAM/PCM jack	5.1CH SURROUND AUDIO OUT jacks	BITSTREAM/PCM jack	MIXED AUDIO OUT jacks	BITSTREAM/PCM jack	MIXED AUDIO OUT jacks
DVD video discs	Dolby Digital		Bitstream	▨ 48 kHz/20 bit	—	48 kHz/16 bit	Bitstream	▨ 48 kHz/20 bit	▨ 48 kHz/16 bit	▨ 48 kHz/20 bit
	Linear PCM	48 kHz/16 bit	▨ 48 kHz/16 bit	▨ 48 kHz/16 bit	—	48 kHz/16 bit	▨ 48 kHz/16 bit	▨ 48 kHz/16 bit	▨ 48 kHz/16 bit	▨ 48 kHz/16 bit
		48 kHz/20 bit	▨ 48 kHz/16 bit	▨ 48 kHz/20 bit	—	48 kHz/20 bit	▨ 48 kHz/16 bit	▨ 48 kHz/20 bit	▨ 48 kHz/16 bit	▨ 48 kHz/20 bit
		48 kHz/24 bit	▨ 48 kHz/16 bit	▨ 48 kHz/20 bit	—	48 kHz/20 bit	—	▨ 48 kHz/24 bit	▨ 48 kHz/16 bit	▨ 48 kHz/20 bit
		96 kHz/16 bit	▨ 48 kHz/16 bit	▨ 48 kHz/16 bit	—	96 kHz/16 bit	—	▨ 96 kHz/16 bit	▨ 48 kHz/16 bit	▨ 48 kHz/16 bit
		96 kHz/20 bit	▨ 48 kHz/16 bit	▨ 48 kHz/20 bit	—	96 kHz/20 bit	—	▨ 96 kHz/20 bit	▨ 48 kHz/16 bit	▨ 48 kHz/20 bit
		96 kHz/24 bit	▨ 48 kHz/16 bit	▨ 48 kHz/20 bit	—	96 kHz/20 bit	—	▨ 96 kHz/24 bit	▨ 48 kHz/16 bit	▨ 48 kHz/20 bit
	DTS		Bitstream	—	Bitstream	—	Bitstream	—	—	—
	MPEG2		Bitstream(7.1ch)	—	—	48 kHz/16 bit	Bitstream(2ch)	▨ 48 kHz/16 bit	▨ 48 kHz/16 bit	▨ 48 kHz/16 bit
VIDEO CDs	MPEG1		▨ 44.1 kHz/16 bit	▨ 44.1 kHz/16 bit	—	44.1 kHz/16 bit	▨ 44.1 kHz/16 bit	▨ 44.1 kHz/16 bit	▨ 44.1 kHz/16 bit	▨ 44.1 kHz/16 bit
Audio CDs	Linear PCM 44.1 kHz/16 bit		44.1 kHz/16 bit	▨ 44.1 kHz/16 bit	44.1 kHz/16 bit	44.1 kHz/16 bit	44.1 kHz/16 bit	▨ 44.1 kHz/16 bit	44.1 kHz/16 bit	▨ 44.1 kHz/16 bit

▨ : 3D (N-2-2) sound enhancement can function.

Selecting Subtitles


▲/▼/◀/▶
SUBTITLE
CLEAR


Good evening!
Bonsoir!
¡Buenas tardes!
• • •

You can display subtitles on the TV screen and select a preferred subtitle language.

Turning Subtitles On or Off

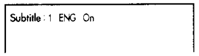
DVD

You can select whether to display subtitles or not.

1 SUBTITLE

Press SUBTITLE during playback.

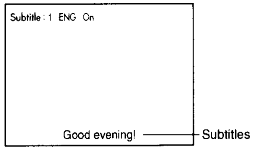
The current subtitle setting appears for about 3 seconds.


Subtitle : 1 ENG On

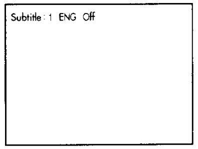
2

Press ◀ or ▶ while the subtitle setting appears on the TV screen, to select "On" or "Off."

On: Subtitles are displayed.


Subtitle : 1 ENG On
Good evening!
Subtitles

Off: Subtitles are not displayed.


Subtitle : 1 ENG Off

Notes

- Some DVD video discs are set to display subtitles automatically, and you cannot turn them off even if you set the subtitle function to off.
- During some scenes, the subtitles may not appear immediately after you select "On."
- Some DVD video discs will allow you to make subtitle selections and turn subtitles on or off only via the disc menu.

Selecting a Subtitle Language

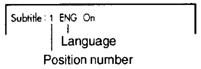
DVD

You can select a subtitle language from those included on the DVD video disc.

1 SUBTITLE

Press SUBTITLE during playback.

The current subtitle setting appears for about 3 seconds.


Subtitle : 1 ENG On
Language
Position number

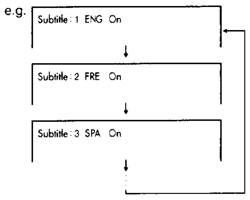
The abbreviation of the language appears instead of the language name. Refer to the list of languages and their abbreviations. 41

2 SUBTITLE

Press SUBTITLE or ▲ while the subtitle setting appears on the TV screen.

Each time you press the SUBTITLE or ▲ button, the subtitle languages included on the DVD video disc change.

e.g.


Subtitle : 1 ENG On
Subtitle : 2 FRE On
Subtitle : 3 SPA On

▼ : Cycles backwards

To turn off the subtitle setting indicator

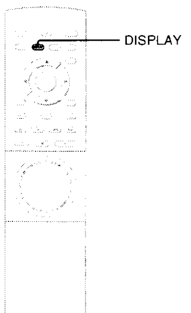
CLEAR

Press CLEAR.

Notes

- When you turn on the DVD video player or replace a disc, the player returns to the initial default setting. 34
  When you select a subtitle language which is not included on the disc, the DVD video player plays a prior language programmed on the disc.
- During some scenes, the subtitles may not appear immediately after you change the subtitle language by pressing the ▲ / ▼ buttons.

Using the On-Screen Display



You can view information about a disc and its operational status on the TV screen.

Checking the Operational Status

DVD VCD CD

You can view the current title number, track number, and total playing time of the disc on the TV screen.

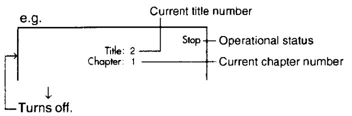
DISPLAY

Press DISPLAY during stop.

Each time you press the DISPLAY button, the on-screen display changes as follows.

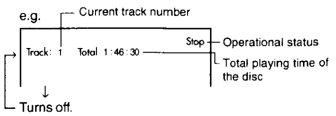
(DVD video disc)

e.g.


Current title number
Title : 2
Chapter : 1
Stop
Operational status
Current chapter number
Turns off.

(VIDEO CD/audio CD)

e.g.


Current track number
Track : 1
Total 1 : 46 : 30
Stop
Operational status
Total playing time of the disc
Turns off.

Checking the Remaining Time and Setting Status

DVD VCD CD

You can view the elapsed time, remaining time, and setting status of the disc on the TV screen.

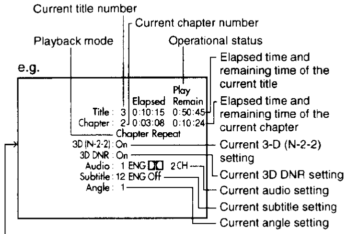
DISPLAY

Press DISPLAY during playback.

Each time you press the DISPLAY button, the on-screen display changes as follows.

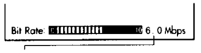
(DVD video disc)

e.g.


Current title number
Current chapter number
Playback mode
Operational status
Play
Elapsed
Remain
Title : 3 0:10:15 0:50:45
Chapter : 2 0:03:08 0:10:24
Chapter Repeat
3D (N-2-2) : On
3D DNR : On
Audio : 1 ENG 2CH
Subtitle : 12 ENG Off
Angle : 1
Elapsed time and remaining time of the current title
Elapsed time and remaining time of the current chapter
Current 3-D (N-2-2) setting
Current 3D DNR setting
Current audio setting
Current subtitle setting
Current angle setting

The abbreviation of the language (e.g. ENG) appears instead of the language name. Refer to the list of languages and their abbreviations. 41

↓


Bit Rate
6 . 0 Mbps

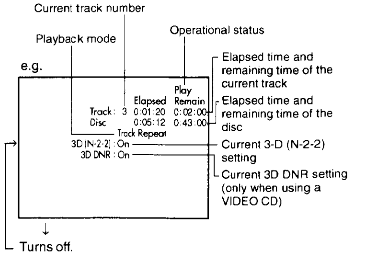
Data transfer rate (Mbit/s)
= Amount of picture, sound and subtitle data in the DVD video disc transferred per second.
The larger the value is, the more data processed, but this does not necessarily insure better picture quality.

↓

Turns off.

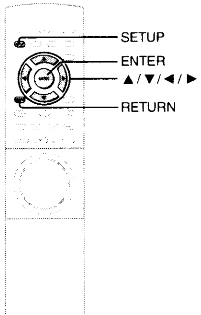
(VIDEO CD/audio CD)

e.g.


Current track number
Playback mode
Operational status
Play
Elapsed
Remain
Track : 3 0:01:20 0:02:00
Disc 0:05:12 0:43:00
Track Repeat
3D (N-2-2) : On
3D DNR : On
Elapsed time and remaining time of the current track
Elapsed time and remaining time of the disc
Current 3-D (N-2-2) setting
Current 3D DNR setting (only when using a VIDEO CD)
Turns off.

Function Setup

Customizing the Function Settings



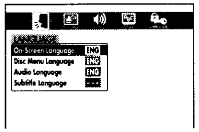
LANGUAGE PICTURE AUDIO DISPLAY OPERATION

You can change the default settings to customize performance to your preference.

DVD VCD CD

Setting Procedure

1 **Press SETUP during stop.**
The following on-screen display appears.



2 **Press ◀ or ▶ to select a symbol for the setting you want to change.**
(See the next page.)

LANGUAGE	Settings on languages
PICTURE	Settings on playback picture conditions
AUDIO	Settings on sound output
DISPLAY	Settings on displays
OPERATION	Settings on operational options

3 **Press ▲ / ▼ to select the setting you want to change, then press ENTER.**

4 **Change the setting by ▲ / ▼ or other buttons, referring to the pages from 34, then press ENTER.**

5 **Repeat steps 3 and 4 to change other settings.**
To select another symbol, go back to step 2.

6 **Press SETUP.**
The on-screen display disappears.

RETURN : To return to the previous display, press RETURN.

Notes

- The on-screen display disappears when you press the SETUP button.
- The SETUP button can function even during normal playback, however some operations may be inaccessible, and a message will appear. In this case, try again after playing is stopped.

	Setting		Details	Page
LANGUAGE	On-Screen Language	DVD VCD CD	To select a preferred language for on-screen displays.	34
	Disc Menu Language	DVD	To select a preferred language for disc menus.	34
	Audio Language	DVD	To select a preferred language for the sound track.	34
	Subtitle Language	DVD	To select a preferred language for subtitles.	34
PICTURE	TV Shape	DVD	To select a picture size according to the aspect ratio of your TV.	35
	Custom Picture Setting	DVD VCD	To adjust the picture quality.	36
	PAL/Auto	DVD VCD	To select the video system of a disc.	36
AUDIO	Audio Out Select	DVD VCD CD	To select an output sound format corresponding to your system connection.	36
	Dynamic Range Control	DVD	To turn on or off a function that makes faint sounds easier to hear even if you lower the volume during late hours playback.	38
	Karaoke Vocal	DVD	To turn on or off the vocal output during DVD KARAOKE disc playback.	38
	Extended Audio Features	DVD	To turn on or off special language for visually impaired persons.	38
DISPLAY	On-Screen Displays	DVD VCD CD	To turn on or off the operational status display (On-screen display) on the TV screen.	38
	OSD Background Color	DVD VCD CD	To select the background color for on-screen displays.	38
	Extended Subtitle Features	DVD	To turn on or off special subtitles for hearing impaired persons.	38
	Screen Saver	DVD	To turn on or off the screen saver.	38
OPERATION	Pause/Still	DVD	To select the resolution of still pictures. (Field/Frame)	39
	Parental Lock	DVD	To turn on or off the parental lock function.	39
	Remote Confirmation	DVD VCD CD	To turn on or off the confirmation beeper for each remote command received.	40
	Title Stop	DVD	To turn on or off a feature that automatically stops playback after a title has been viewed.	40
	PBC	VCD	To use the menu screen when playing a PBC-controllable VIDEO CD.	40

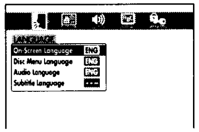
(Continued)

Customizing the Function Settings *(continued)*

Setting Details

DVD VCD CD

LANGUAGE


LANGUAGE
On-Screen Language ENG
Disc Menu Language ENG
Audio Language ENG
Subtitle Language ---

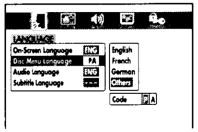
On-Screen Language DVD VCD CD

English: To view on-screen displays in English.
French: To view on-screen displays in French.
German: To view on-screen displays in German.

Disc Menu Language DVD

English: To display disc menus in English.
French: To display disc menus in French.
German: To display disc menus in German.
Others: To make a further choice.
After pressing the ENTER button, follow steps 1) - 4) below.

1) Obtain the abbreviation of the preferred language from the list 41.
2) Select the first character by pressing the ▲ / ▼ buttons.
3) Press the ◀ / ▶ buttons to shift and select the second character by pressing the ▲ / ▼ buttons.


LANGUAGE
On-Screen Language ENG
Disc Menu Language PA
Audio Language ENG
Subtitle Language ---
English
French
German
Others
Code PA

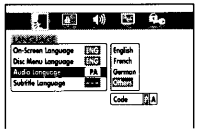
4) Press the ENTER button.

Note
Some DVD video discs may not include your pre-selected language. In this case, the DVD video player automatically displays disc menus consistent with the disc's initial language setting.

Audio Language DVD

English: To play sound tracks in English.
French: To play sound tracks in French.
German: To play sound tracks in German.
Others: To make a further choice.
After pressing the ENTER button, follow steps 1) - 4) below.

1) Obtain the abbreviation of the preferred language from the list 41.
2) Select the first character by pressing the ▲ / ▼ buttons.
3) Press the ◀ / ▶ buttons to shift and select the second character by pressing the ▲ / ▼ buttons.


LANGUAGE
On-Screen Language ENG
Disc Menu Language ENG
Audio Language PA
Subtitle Language ---
English
French
German
Others
Code PA

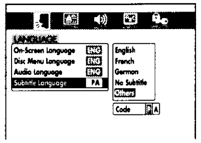
4) Press the ENTER button.

Note
Some DVD video discs may be played in a different language than you selected. A prior language may be programmed on the disc.

Subtitle Language DVD

English: To display subtitles in English.
French: To display subtitles in French.
German: To display subtitles in German.
No Subtitle: To disable subtitles.
Others: To make a further choice.
After pressing the ENTER button, follow steps 1) - 4) below.

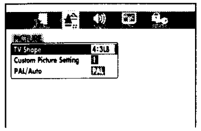
1) Obtain the abbreviation of the preferred language from the list 41.
2) Select the first character by pressing the ▲ / ▼ buttons.
3) Press the ◀ / ▶ buttons to shift and select the second character by pressing the ▲ / ▼ buttons.


LANGUAGE
On-Screen Language ENG
Disc Menu Language ENG
Audio Language ENG
Subtitle Language PA
English
French
German
No Subtitle
Others
Code PA

4) Press the ENTER button.

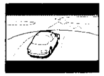
Notes
- Some DVD video discs may be set to display subtitles in a different language than you selected. A prior subtitle language may be programmed on the disc.
- Some DVD video discs allow you to change subtitle selections only via the disc menu. If this is the case, press the MENU button and choose the appropriate subtitle language from the selection on the disc menu.

PICTURE

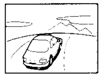

PICTURE
TV Shape 4:3LB
Custom Picture Setting 1
PAL/Auto PAL

TV Shape DVD

4:3 LetterBox: Select when a 4:3 TV is connected. Displays theatrical images with masking bars above and below the picture.



4:3 Normal: Select when a 4:3 TV is connected. Displays pictures cropped to fill your TV screen. Either or both sides of the picture are cut off.



16:9 Widescreen: Select when a 16:9 wide TV is connected.

Notes
- The displayable picture size is preset on the DVD video disc. Therefore, the playback picture of some DVD video discs may not conform to the picture size you select.
- When you play DVD video discs recorded in the 4:3 picture size only, the playback picture always appears in the 4:3 picture size regardless of the TV shape setting.
- If you select "16:9 Widescreen" and you own a 4:3 TV set, the DVD playback picture will be horizontally distorted during playback. Images will appear to be horizontally compressed. Always be sure that your TV shape conforms to the actual TV in use.

(Continued)

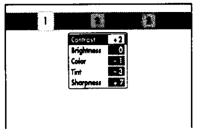
Customizing the Function Settings *(continued)*

Setting Details

DVD VCD CD

Custom Picture Setting DVD VCD

You can fine adjust picture quality and store up to 3 picture settings in the memory of the DVD video player.


1
Contrast +2
Brightness 0
Color -1
Tint -3
Sharpness +7

To select a preset memory setting:
1) Press the ◀ / ▶ buttons to select a memory number (1 to 3).
2) Press the ▲ / ▼ buttons to select the element, then press the ENTER button.
3) Press the ◀ / ▶ buttons to adjust the value, then press the ENTER button.

-7	Lower	**Contrast**	Higher	+7
0	Darker	**Brightness**	Brighter	+14
-7	Duller	**Color**	Brighter	+7
-7	Redder	**Tint**	Greener	+7
-7	Softer	**Sharpness**	Sharper	+7

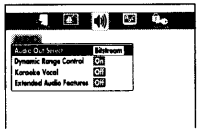
Notes:
- The "Tint" adjustment is not available for PAL discs.
- The "Tint" adjustment is not available when connecting to a TV via the color difference jacks.

PAL/Auto DVD VCD

PAL: To play a PAL disc. Connect a PAL TV to view a picture.

Auto: The DVD video player automatically identifies PAL or NTSC video system of a disc. Connect a multisystem TV (PAL/NTSC compatible) to view a picture.
A playback picture may be distorted when detected a signal change between PAL and NTSC on the disc.

AUDIO


Audio Out Select Bitstream
Dynamic Range Control On
Karaoke Vocal Off
Extended Audio Features Off

Audio Out Select DVD VCD CD

Select the output sound type according to your system connection.
For details of sound recording systems, see [29].

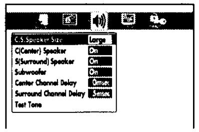
Bitstream: Select when connected to an amplifier equipped with a Dolby Digital, DTS, MPEG1 or MPEG2 decoder. [14] [15]
The DVD video player outputs digital audio information in the bitstream format when you play a DVD video disc recorded on the Dolby Digital, DTS, MPEG1 or MPEG2 recording system.

Analog 6ch: Select when connected to a Dolby Digital ready amplifier equipped with 5.1ch audio inputs. [14]
This DVD video player is equipped with a Dolby Digital decoder.
The next screen will appear for the detailed setting. See [37].

Analog 2ch: Select when connected to a TV, or Dolby Pro Logic or stereo system via the analog audio jacks. [12] [13] [14]

PCM: Select when connected to a 2 channel digital stereo amplifier. [15]
The DVD video player outputs sounds in the PCM 2ch format when you play a DVD video disc recorded on the Dolby Digital, MPEG1 or MPEG2 recording system.

When you select "Analog 6Ch" [36]:
Make the follow settings for the built-in 5.1ch surround decoder.


C.S.Speaker Size Large
C(Center) Speaker On
S(Surround) Speaker On
Subwoofer On
Center Channel Delay 0msec
Surround Channel Delay 5msec
Test Tone

1) Select an item by pressing the ▲ / ▼ buttons, and press the ENTER button.

2) Make the settings (see below) by pressing the ▲ / ▼ / ◀ / ▶ buttons, and press the ENTER button.

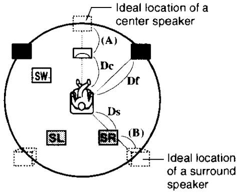
C.S.Speaker Size
Large: When the center speakers and surround speakers can reproduce low frequency signals below 120 Hz.
Small: When the center speakers or surround speakers cannot reproduce low frequency signals below 120 Hz.

C(Center) Speaker
On: When you connect center speakers.
Off: When center speakers are not connected.

S(Surround) Speaker
On: When you connect surround speakers.
Off: When surround speakers are not connected.

Subwoofer
On: When you connect a sub woofer.
Off: When a sub woofer is not connected.

Adjusting the delay time:
When enjoying 5.1ch surround playback, it is ideal to choose a listening position that is the same distance from each speaker. By adjusting the delay time of the center/surround speakers, you can virtually create an ideal listening environment (as if the center/surround speakers were at their ideal locations respectively as below.)


Ideal location of a center speaker
(A)
Dc
Df
Ds
(B)
SW
SL
SR
Ideal location of a surround speaker

All speakers should be located within a circle with a radius of Df.

Center Channel Delay
0msec: When Df equals Dc.
1msec: When (A) is approx. 34 cm (13 inch)
2msec: When (A) is approx. 68 cm (27 inch)
3msec: When (A) is approx. 102 cm (40 inch) . . .
*(A) = Df – Dc
Get your optimum value (0, 1, 2 . . . 5) dividing (A) by 34.

Surround Channel Delay
0msec: When Df equals Ds.
1msec: When (B) is approx. 34 cm (13 inch)
2msec: When (B) is approx. 68 cm (27 inch)
3msec: When (B) is approx. 102 cm (40 inch) . . .
*(B) = Df – Ds
Get your optimum value (0, 1, 2 . . . 15) dividing (B) by 34.

3) Select "Test Tone" and press the ENTER button.
The DVD video player outputs a test signal to each speaker.
Press the ◀ / ▶ buttons to switch the receiving speakers, and adjust the channel balance on the amplifier so that each signal is heard at its appropriate volume level.

- Depending on the disc, 6 channel sounds may not be output via the 5.1 CH SURROUND AUDIO OUT jacks.

Customizing the Function Settings *(continued)*

Setting Details

DVD VCD CD

Dynamic Range Control DVD

Off: Full dynamic range is maintained.
On: Dynamic range is reduced.

Notes
- This function works only during playback of Dolby Digital recorded discs.
- The level of Dynamic Range Reduction may differ depending on the DVD video disc.

Karaoke Vocal DVD

Off: The primary vocal is not output.
On: The primary vocal is output when it is recorded on the disc.

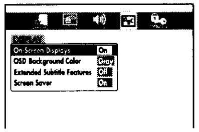
Note
- The vocal output feature is used during playback of Dolby Digital (multi-channel) recorded DVD KARAOKE discs. This feature allows you to turn off vocal audio tracks, or restore them for background accompaniment.
- When playing KARAOKE, connect appropriate audio equipment such as an amplifier to the DVD video player.

Extended Audio Features DVD

Some DVD video discs contain special language track that describes the actions on-screen for visually impaired persons. The DVD video player automatically detects the language and plays it.

Off: This function does not work.
On: This function works.

DISPLAY


On-Screen Displays On
OSD Background Color Gray
Extended Subtitle Features Off
Screen Saver On

On-Screen Displays DVD VCD CD

Off: Operational modes (e.g. "Play") are not displayed.
On: Operational modes (e.g. "Play") are displayed on-screen.

OSD Background Color DVD VCD CD

Blue: Blue background.
Gray: Gray background.

Extended Subtitle Features DVD

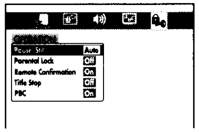
Some DVD video discs contain special subtitles, an enhancement of closed captioning for hearing impaired persons. The DVD video player automatically detects these special subtitles and displays them.

Off: This function does not work.
On: This function works.

Screen Saver DVD

Off: The screen saver does not work.
On: The screen saver works.

OPERATION


Pause/Still Auto
Parental Lock Off
Remote Confirmation On
Title Stop Off
PBC On

Pause/Still DVD

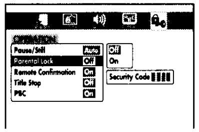
Auto: For normal use. Pictures can pause without shaking.
Frame: The resolution of still pictures is raised, so that you can make especially a motionless picture more clearer when you pause it.

Parental Lock DVD

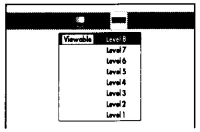
DVD video discs equipped with the parental lock function are rated according to their content. The contents allowed by a parental lock level and the way a DVD video disc can be controlled may vary from disc to disc. For example, if the disc allowed you could edit out violent scenes unsuitable for children and replace them with more suitable scenes, or lock out playback of the disc altogether.

- DVD video discs may or may not respond to the parental lock settings. This is not a defect in the DVD video player. Make sure this function works with your DVD video discs.

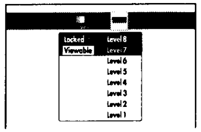
Off: The parental lock feature does not function. After pressing the ENTER button, follow step 1) below.
On: To activate the parental lock feature or change the settings. After pressing the ENTER button, follow steps 1) - 3) below.


Pause/Still Auto
Parental Lock Off
Remote Confirmation On
Title Stop Off
PBC On
Off
On
Security Code ▮▮▮▮

1) Press the number buttons to create a personal 4-digit security code, then press ENTER.
   If you make a mistake before pressing the ENTER button, press the CLEAR button and enter your 4-digit security code again.
2) Press the ◀ / ▶ buttons to select the country whose standards were used to rate the DVD video disc.


Viewable Level 8
Level 7
Level 6
Level 5
Level 4
Level 3
Level 2
Level 1

3) Press the ▲ / ▼ buttons to select the parental lock level, then press the ENTER button.


Locked Level 8
Viewable Level 7
Level 6
Level 5
Level 4
Level 3
Level 2
Level 1

You cannot play DVD video discs rated higher than the level you selected unless you cancel the parental lock function.
For example, when you select level 7, discs rated higher than level 7 are locked out and cannot be played.

■ **To change the parental lock level**
Follow steps 1) - 3).

■ **To change your 4-digit security code:**
1) After selecting "On" or "Off", press the STOP button four times, then press the ENTER button.
   STOP ■ → STOP ■ → STOP ■ → STOP ■ → ENTER
   The 4-digit security code is cleared.
2) Enter new security code using the number buttons.
3) Press the ENTER button.

(Continued)

Customizing the Function Settings *(continued)*

Setting Details

DVD VCD CD

Remote Confirmation DVD VCD CD

Off: The beeper does not sound.
On: The beeper sounds with each remote operation.

Title Stop DVD

Off: The DVD video player continues after playback of a title is completed.
On: The DVD video player stops after playback of a title is completed.

PBC VCD

Off: When playing a VIDEO CD without using the menu.
On: To use the menu when playing a PBC-featured VIDEO CD.

Table of Languages

Table of Languages and Their Abbreviations

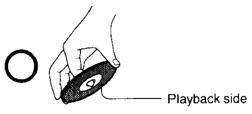
Abbreviation of the Language	Language
- - -	No alternate language
CHI (ZH)	Chinese
DUT (NL)	Dutch
ENG (EN)	English
FRE (FR)	French
GER (DE)	German
ITA (IT)	Italian
JPN (JA)	Japanese
KOR (KO)	Korean
MAY (MS)	Malay
SPA (ES)	Spanish
AA	Afar
AB	Abkhazian
AF	Afrikaans
AM	Amharic
AR	Arabic
AS	Assamese
AY	Aymara
AZ	Azerbaijani
BA	Bashkir
BE	Belorussian
BG	Bulgarian
BH	Bihari
BI	Bislama
BN	Bengali, Bangla
BO	Tibetan
BR	Breton
CA	Catalan
CO	Corsican
CS	Czech
CY	Welsh
DA	Danish
DZ	Bhutani
EL	Greek
EO	Esperanto
ET	Estonian
EU	Basque
FA	Persian
FI	Finnish
FJ	Fiji
FO	Faroese
FY	Frisian
GA	Irish
GD	Scottish Gaelic
GL	Galician
GN	Guarani
GU	Gujarati
HA	Hausa
HI	Hindi
HR	Croatian
HU	Hungarian
HY	Armenian
IA	Interlingua
IE	Interlingue
IK	Inupiak
IN	Indonesian
IS	Icelandic
IW	Hebrew
JI	Yiddish
JW	Javanese
KA	Georgian
KK	Kazakh
KL	Greenlandic
KM	Cambodian
KN	Kannada
KS	Kashmiri
KU	Kurdish
KY	Kirghiz
LA	Latin
LN	Lingala
LO	Laotian
LT	Lithuanian
LV	Latvian, Lettish
MG	Malagasy
MI	Maori
MK	Macedonian
ML	Malayalam
MN	Mongolian
MO	Moldavian
MR	Marathi
MT	Maltese
MY	Burmese
NA	Nauru
NE	Nepali
NO	Norwegian
OC	Occitan
OM	(Afan) Oromo
OR	Oriya
PA	Panjabi
PL	Polish
PS	Pashto, Pushto
PT	Portuguese
QU	Quechua
RM	Rhaeto-Romance
RN	Kirundi
RO	Rumanian
RU	Russian
RW	Kinyarwanda
SA	Sanskrit
SD	Sindhi
SG	Sango
SH	Serbo-Croatian
SI	Singhalese
SK	Slovak
SL	Slovenian
SM	Samoan
SN	Shona
SO	Somali
SQ	Albanian
SR	Serbian
SS	Siswati
ST	Sesotho
SU	Sundanese
SV	Swedish
SW	Swahili
TA	Tamil
TE	Telugu
TG	Tajik
TH	Thai
TI	Tigrinya
TK	Turkmen
TL	Tagalog
TN	Setswana
TO	Tongan
TR	Turkish
TS	Tsonga
TT	Tatar
TW	Twi
UK	Ukrainian
UR	Urdu
UZ	Uzbek
VI	Vietnamese
VO	Volapük
WO	Wolof
XH	Xhosa
YO	Yoruba
ZU	Zulu

Others

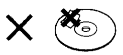
Notes on Discs

On Handling Discs

- Do not touch the playback side of the disc.

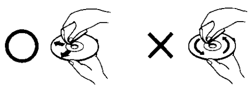


- Do not attach paper or tape to discs.



On Cleaning Discs

- Fingerprints and dust on the disc cause picture and sound deterioration. Wipe the disc from the center outwards with a soft cloth. Always keep the disc clean.



- If you cannot wipe off the dust with a soft cloth, wipe the disc lightly with a slightly moistened soft cloth and finish with a dry cloth.
- Do not use any type of solvent such as thinner, benzine, commercially available cleaners or antistatic spray for vinyl LPs. It may damage the disc.

On Storing Discs

- Do not store discs in a place subject to direct sunlight or near heat sources.
- Do not store discs in places subject to moisture and dust such as a bathroom or near a humidifier.
- Store discs vertically in a case. Stacking or placing objects on discs outside of their case may cause warping.

About This Owner's Manual

This owner's manual explains the basic instructions of this DVD video player. Some DVD video discs are produced in a manner that allows specific or limited operation during playback. As such, the DVD video player may not respond to all operating commands. This is not a defect in the DVD video player. Refer to instruction notes of discs.

"⃠" may appear on the TV screen during operation. A "⃠" means that the operation is not permitted by the DVD video player or the disc.

Notes on Region Numbers

The region number of this DVD video player is 2. If region numbers, which stand for their playable area, are printed on your DVD video disc and you do not find ② or ALL, disc playback will not be allowed by the player. (In this case, the DVD video player displays the message.)

Playable Discs

This DVD video player can play the following discs.

	Disc mark	Contents	Disc size	Maximum playback time
DVD video discs	DVD VIDEO	Audio + Video (moving pictures)	12 cm	Approx. 4 hours (single sided disc)
				Approx. 8 hours (double sided disc)
			8 cm	Approx. 80 minutes (single sided disc)
				Approx. 160 minutes (double sided disc)
VIDEO CDs	COMPACT disc DIGITAL VIDEO	Audio+ Video (moving pictures)	12 cm	Approx. 74 minutes
			8 cm	Approx. 20 minutes
Audio CDs	COMPACT disc DIGITAL AUDIO	Audio	12 cm	Approx. 74 minutes
			8 cm (CD single)	Approx. 20 minutes

You cannot play discs other than those listed above.

This DVD video player uses the PAL/NTSC color system, and cannot play DVD video discs recorded in any other color system (SECAM, etc.).

On VIDEO CDs

This DVD video player supports VIDEO CDs equipped with the PBC (Version 2.0) function. (PBC is the abbreviation of Playback Control.) You can enjoy two playback variations depending on types of discs.

- **VIDEO CD not equipped with PBC function (Version 1.1)**
  Sound and movie can be played on this DVD video player in the same way as an audio CD.
- **VIDEO CD equipped with PBC function (Version 2.0)**
  In addition to operation of a VIDEO CD not equipped with the PBC function, you can enjoy playback of interactive software with search function by using the menu displayed on the TV screen (Menu Playback). Some of the functions described in this owner's manual may not work with some discs.

Notes on Copyright

It is forbidden by law to copy, broadcast, show, broadcast on cable, play in public, and rent copyrighted material without permission.

DVD video discs are copy protected, and any recordings made from these discs will be distorted.

This product incorporates copyright protection technology that is protected by method claims of certain U.S. patents and other intellectual property rights owned by Macrovision Corporation and other rights owners. Use of this copyright protection technology must be authorized by Macrovision Corporation, and is intended for home and other limited viewing uses only unless otherwise authorized by Macrovision Corporation. Reverse engineering or disassembly is prohibited.

Others

Before Calling Service Personnel

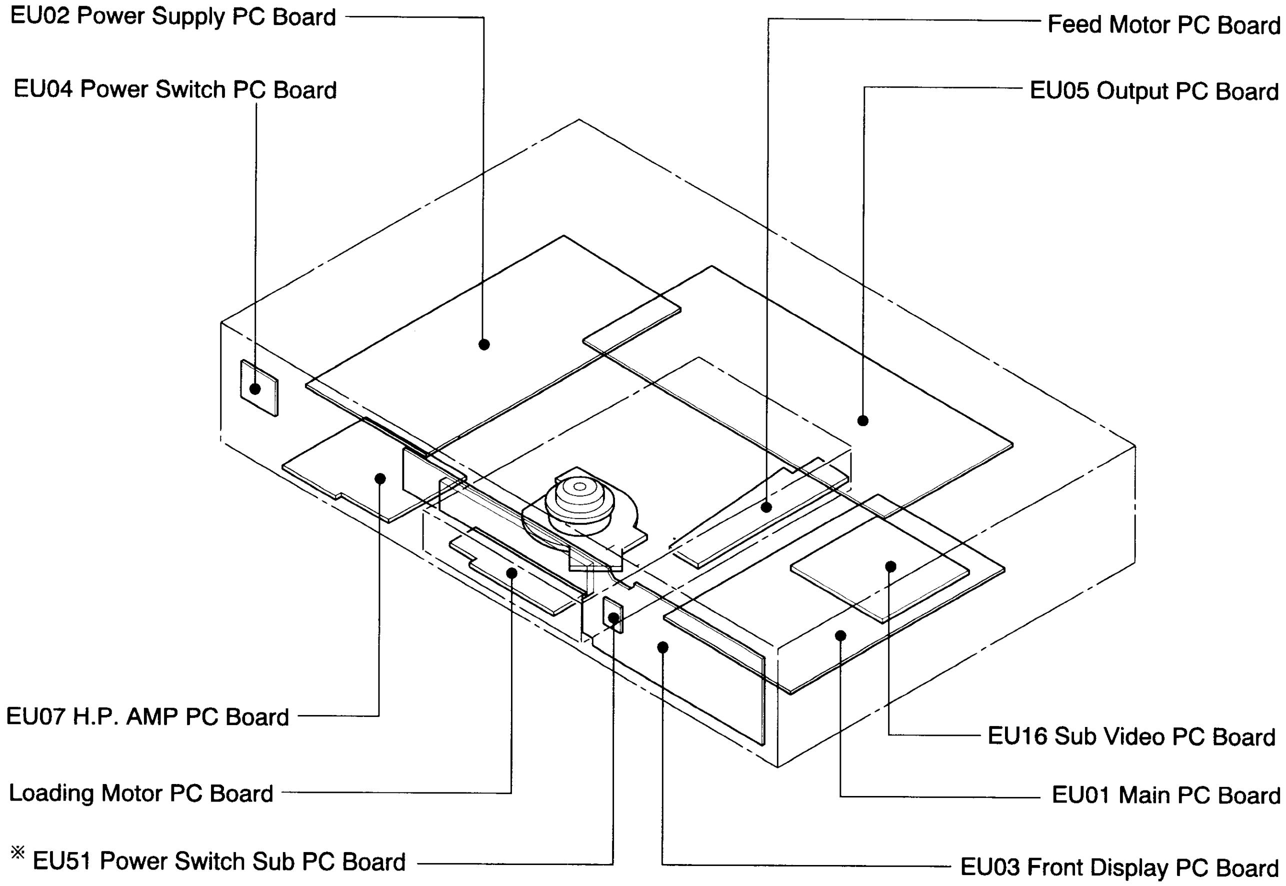
Check the following guide for the possible cause of a problem before contacting service.

Symptoms and Correction

Symptom	Cause	Correction	Page
No power.	• The power plug is disconnected.	• Connect the power plug securely into the wall outlet.	12, 13
No picture.	• The TV is not set to receive DVD signal output.	• Select the appropriate video input mode on the TV so the picture from the DVD video player appears on the TV screen.	16
	• The video cable is not connected securely.	• Connect the video cable securely into the appropriate jacks.	12, 13
No sound.	• The equipment connected with the audio cable is not set to receive DVD signal output.	• Select the correct input mode of the audio receiver so you can listen to the sound from the DVD video player.	16
	• The audio cables are not connected securely.	• Connect the audio cable securely into the appropriate jacks.	12, 13, 14, 15
	• The audio receiver or TV is turned off.	• Turn on the equipment connected with the audio cable.	–
	• The setting of output sound type is incorrect.	• Select the proper audio setting.	29, 32, 36
The playback picture has occasional distortion.	• The disc is dirty.	• Eject the disc and clean it.	42
	• It is in fast forward or fast reverse playback.	• Sometimes a small amount of picture distortion may appear. This is not a malfunction.	–
Brightness is unstable or noises are present in the playback pictures.	• The effect of copy protection.	• Connect the DVD video player directly to the TV. Avoid connecting the DVD video player to a VTR or TV/VTR combination.	12
The DVD video player does not start playback.	• No disc is inserted.	• Insert a disc. (Check that the DVD indicator or VIDEO CD/audio CD indicator in the DVD display is lit.)	9
	• An unplayable disc is inserted.	• Insert a playable disc. (Check the disc type and color system.)	42
	• The disc is placed upside down.	• Place the disc with the playback side down.	16
	• The disc is not placed within the guide.	• Place the disc correctly inside the guide on the disc tray.	16
	• The disc is dirty.	• Clean the disc.	42
	• The parental lock function is set.	• Cancel the parental lock function or change the parental lock level.	32, 39
A disc is not played according to its program.	• It is in the repeat, random, or memory playback.	• These operations may prevent a proper progressing of the disc's contents.	–
Buttons do not work.	• Power supply fluctuations or other abnormalities such as static electricity may interrupt correct operations.	• Turn the power on or off with the POWER button. Or disconnect the power plug and insert it into the wall outlet again.	–
The remote control does not work properly.	• The remote control is not pointed at the remote sensor of the DVD video player.	• Point the remote control at the remote sensor of the DVD video player.	11
	• The remote control is too far from the DVD video player.	• Operate the remote control within about 7 m.	11
	• The batteries in the remote control are exhausted.	• Replace the batteries with new ones.	11

2. LOCATION OF MAIN PARTS AND MECHANISM PARTS

2-1. Location of Main Parts


EU02 Power Supply PC Board
EU04 Power Switch PC Board
Feed Motor PC Board
EU05 Output PC Board
EU07 H.P. AMP PC Board
Loading Motor PC Board
※ EU51 Power Switch Sub PC Board
EU16 Sub Video PC Board
EU01 Main PC Board
EU03 Front Display PC Board

* EU51 (Power Switch Sub) PC Board is not required for the unit equipped with a type number of IC 601 (Main CPU) later than 9417 (ex. TMP93CS42AF-9417).

Fig. 1-2-1

2-2. Location of Mechanism Parts

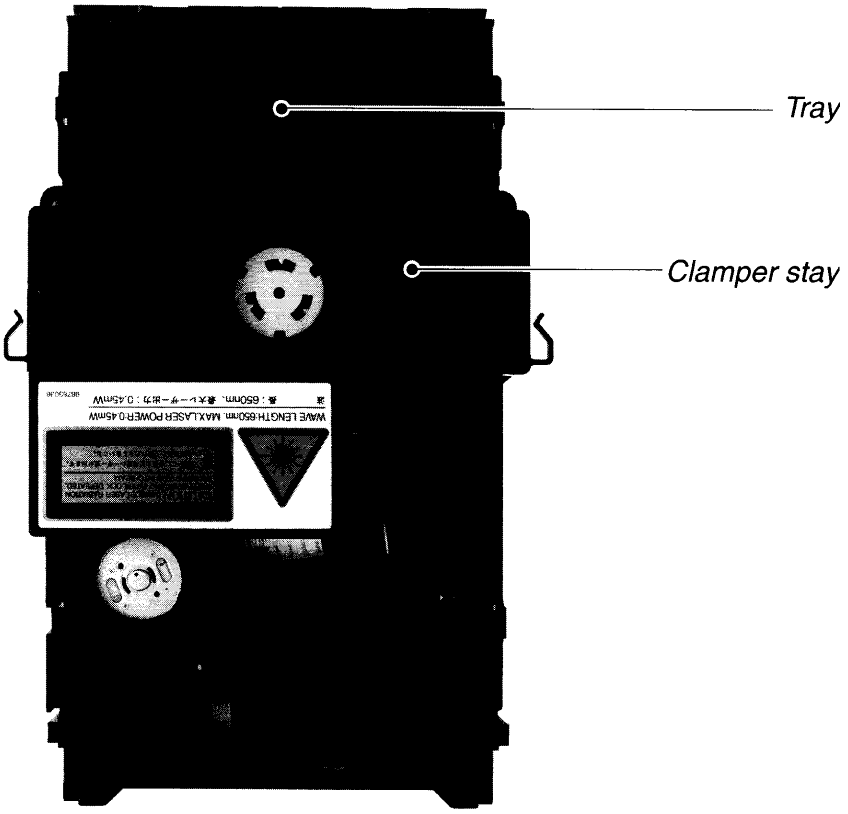

Tray
Clamper stay

Fig. 1-2-2 Mechanism chassis assembly (Top side)

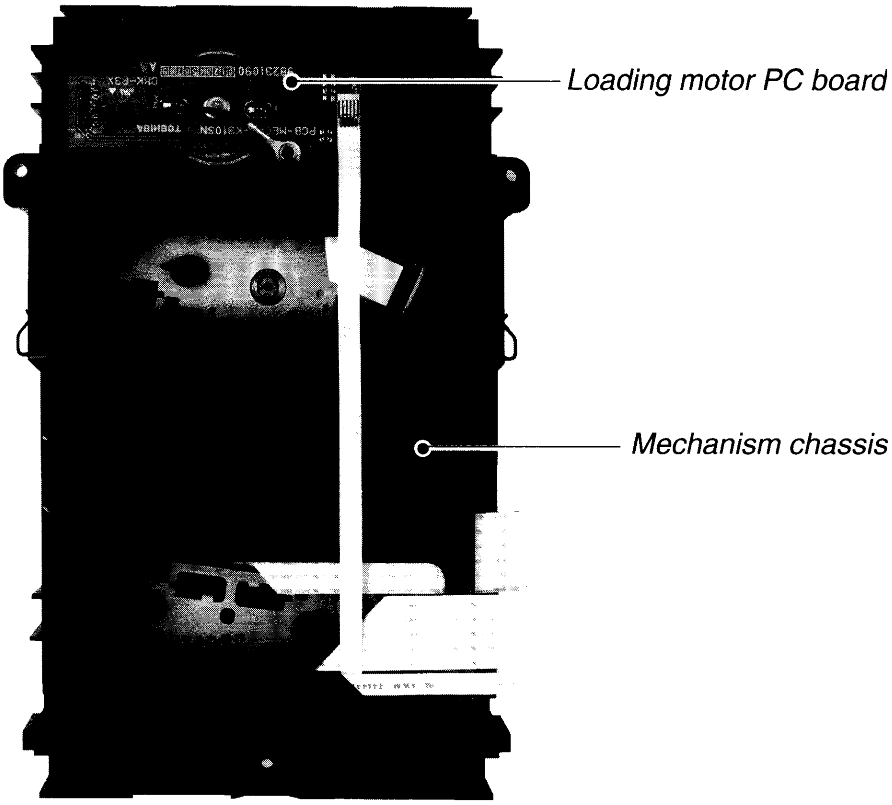

Loading motor PC board
Mechanism chassis

Fig. 1-2-3 Mechanism chassis assembly (Bottom side)

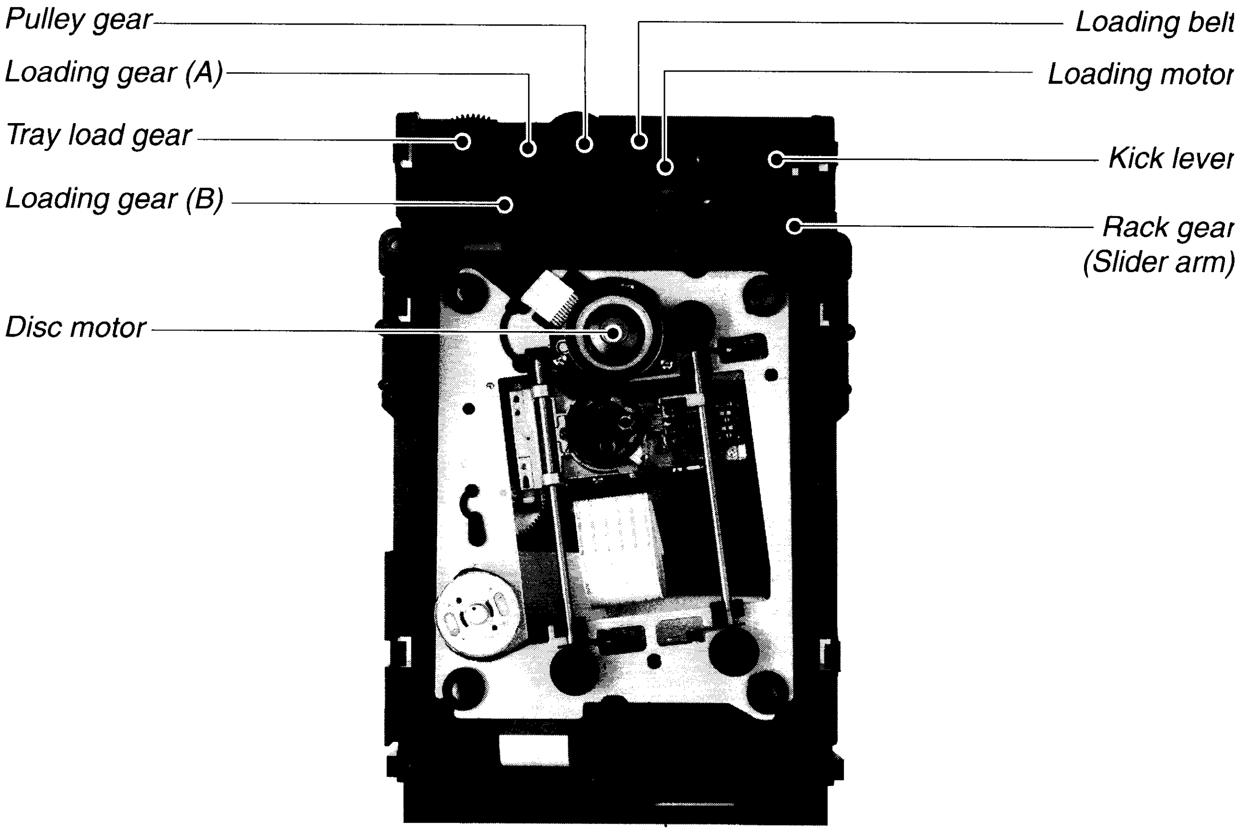

Pulley gear
Loading gear (A)
Tray load gear
Loading gear (B)
Disc motor
Loading belt
Loading motor
Kick lever
Rack gear
(Slider arm)

Fig. 1-2-4 Mechanism chassis assembly (Internal side)

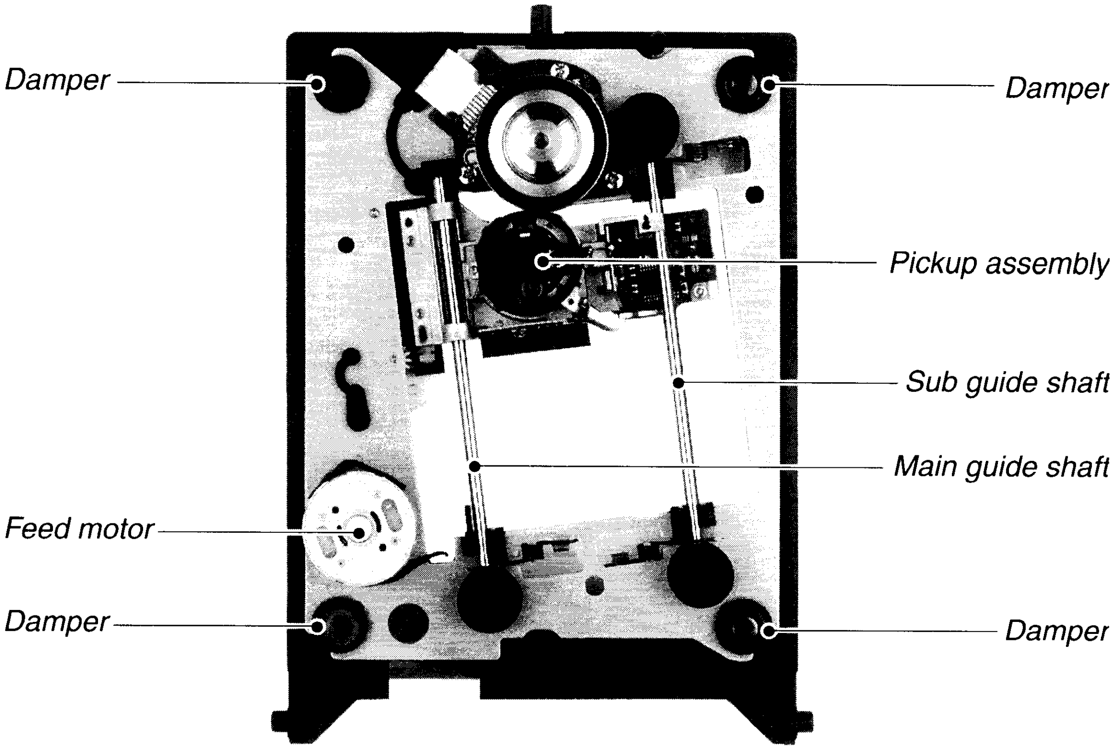

Damper
Damper
Pickup assembly
Sub guide shaft
Main guide shaft
Feed motor
Damper
Damper

Fig. 1-2-5 Pickup mechanism chassis assembly (Top side)

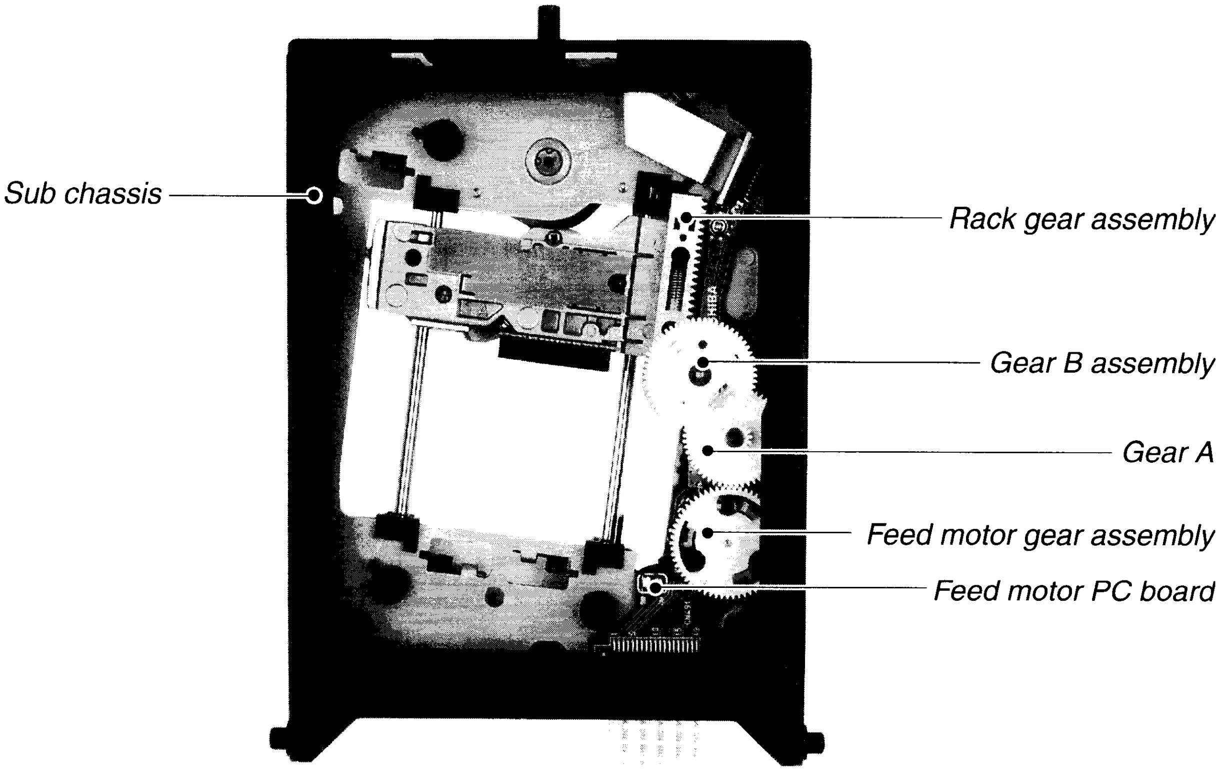

Sub chassis
Rack gear assembly
Gear B assembly
Gear A
Feed motor gear assembly
Feed motor PC board

Fig. 1-2-6 Pickup mechanism chassis assembly (Bottom side)

3. TROUBLESHOOTING

3-1. Main Circuit

3-1-1. Servo System

(1) Initial Operation after Power ON

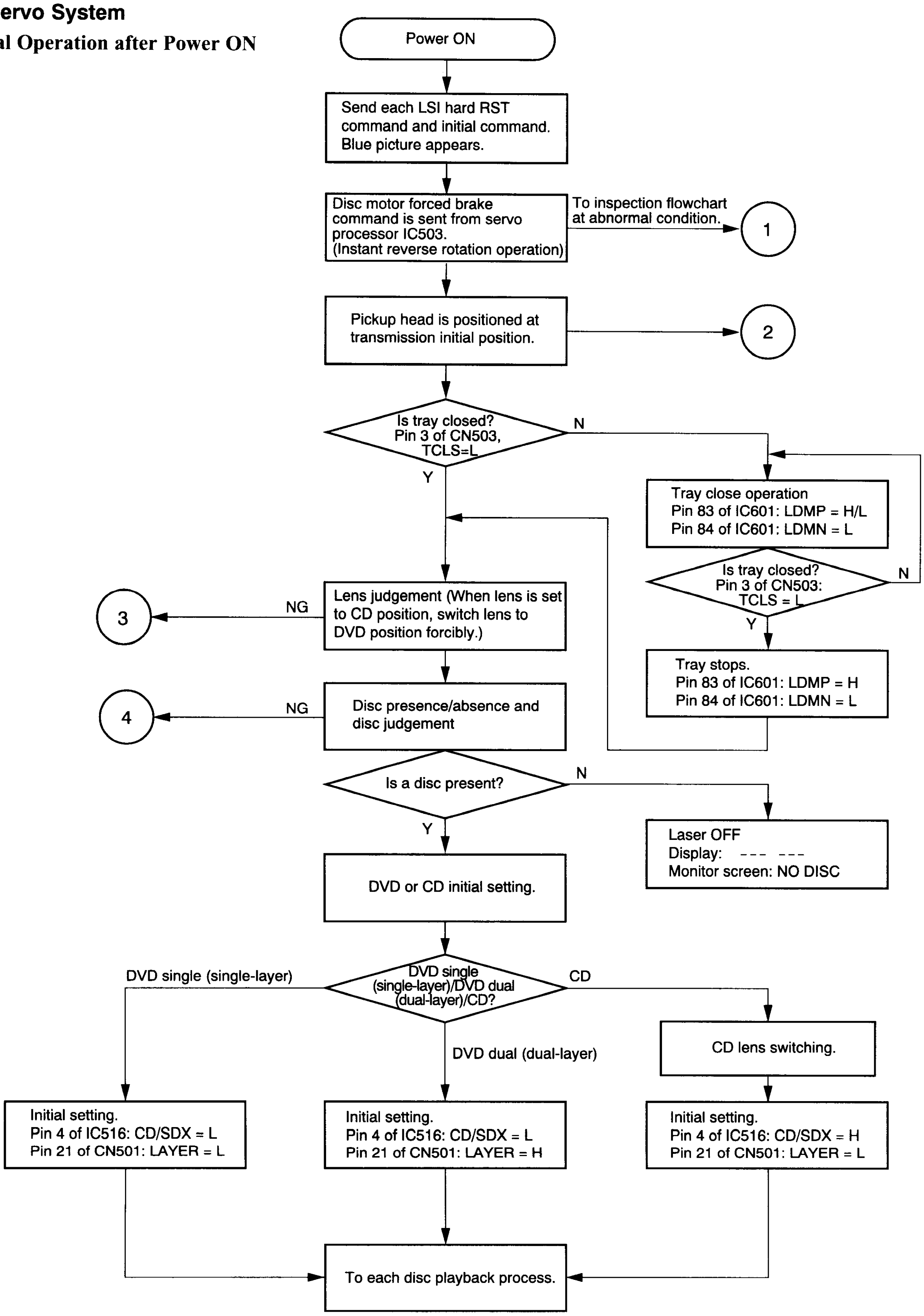
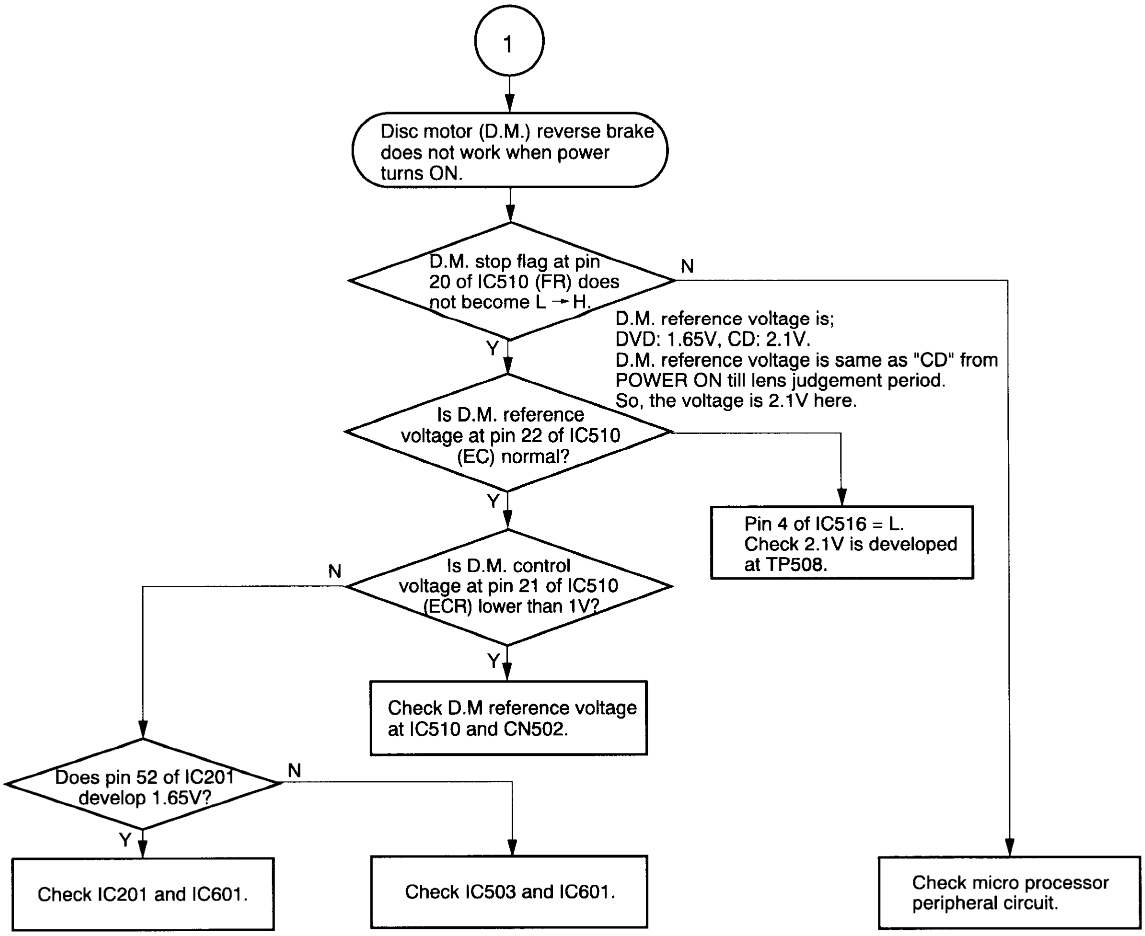
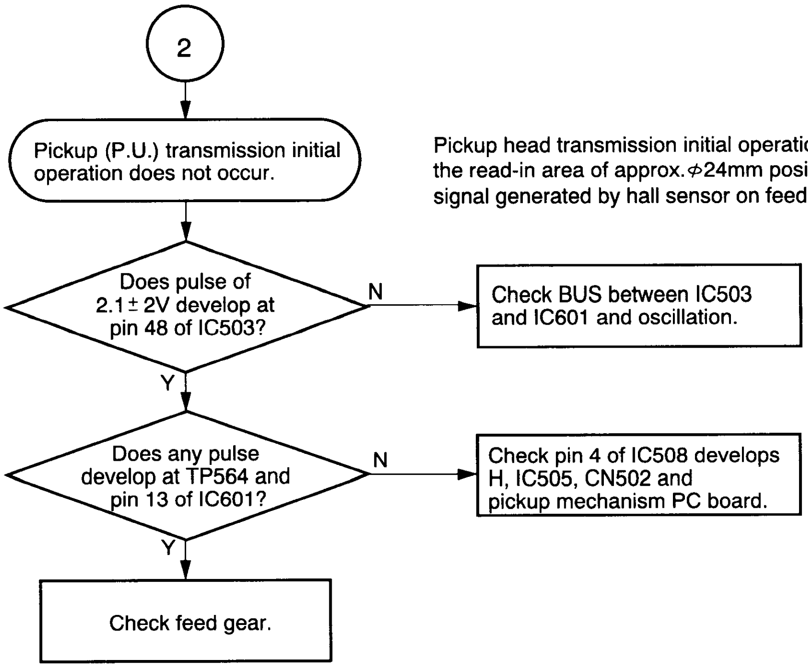

Power ON
Send each LSI hard RST command and initial command. Blue picture appears.
Disc motor forced brake command is sent from servo processor IC503. (Instant reverse rotation operation)
To inspection flowchart at abnormal condition.
1
Pickup head is positioned at transmission initial position.
2
Is tray closed? Pin 3 of CN503, TCLS=L
N
Y
Tray close operation
Pin 83 of IC601: LDMP = H/L
Pin 84 of IC601: LDMN = L
Is tray closed? Pin 3 of CN503: TCLS = L
N
Y
Tray stops.
Pin 83 of IC601: LDMP = H
Pin 84 of IC601: LDMN = L
3
NG
Lens judgement (When lens is set to CD position, switch lens to DVD position forcibly.)
4
NG
Disc presence/absence and disc judgement
Is a disc present?
N
Y
Laser OFF
Display: --- ---
Monitor screen: NO DISC
DVD or CD initial setting.
DVD single (single-layer)
DVD single (single-layer)/DVD dual (dual-layer)/CD?
CD
DVD dual (dual-layer)
CD lens switching.
Initial setting.
Pin 4 of IC516: CD/SDX = L
Pin 21 of CN501: LAYER = L
Initial setting.
Pin 4 of IC516: CD/SDX = L
Pin 21 of CN501: LAYER = H
Initial setting.
Pin 4 of IC516: CD/SDX = H
Pin 21 of CN501: LAYER = L
To each disc playback process.

Fig. 1-3-1


1
Disc motor (D.M.) reverse brake does not work when power turns ON.
D.M. stop flag at pin 20 of IC510 (FR) does not become L → H.
N
Y
Is D.M. reference voltage at pin 22 of IC510 (EC) normal?
Y
Pin 4 of IC516 = L. Check 2.1V is developed at TP508.
Is D.M. control voltage at pin 21 of IC510 (ECR) lower than 1V?
N
Y
Check D.M reference voltage at IC510 and CN502.
Does pin 52 of IC201 develop 1.65V?
N
Y
Check IC201 and IC601.
Check IC503 and IC601.
Check micro processor peripheral circuit.

D.M. reference voltage is;
DVD: 1.65V, CD: 2.1V.
D.M. reference voltage is same as "CD" from POWER ON till lens judgement period.
So, the voltage is 2.1V here.

Fig. 1-3-2


2
Pickup (P.U.) transmission initial operation does not occur.
Does pulse of 2.1 ± 2V develop at pin 48 of IC503?
N
Check BUS between IC503 and IC601 and oscillation.
Y
Does any pulse develop at TP564 and pin 13 of IC601?
N
Check pin 4 of IC508 develops H, IC505, CN502 and pickup mechanism PC board.
Y
Check feed gear.

Pickup head transmission initial operation determines the read-in area of approx.ϕ24mm position by TAC signal generated by hall sensor on feed motor PC board.

Fig. 1-3-3

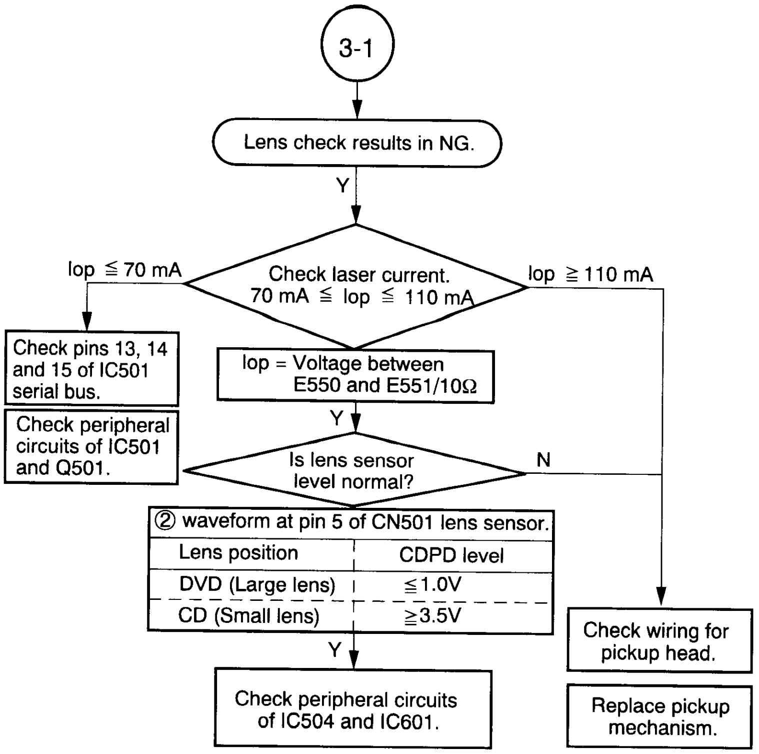

3-1
Lens check results in NG.
Y
Iop ≦ 70 mA
Check laser current.
70 mA ≦ Iop ≦ 110 mA
Iop ≧ 110 mA
Check pins 13, 14 and 15 of IC501 serial bus.
Check peripheral circuits of IC501 and Q501.
Iop = Voltage between E550 and E551/10Ω
Y
Is lens sensor level normal?
N
② waveform at pin 5 of CN501 lens sensor.
Lens position | CDPD level
DVD (Large lens) | ≦1.0V
CD (Small lens) | ≧3.5V
Y
Check peripheral circuits of IC504 and IC601.
Check wiring for pickup head.
Replace pickup mechanism.

Fig. 1-3-4

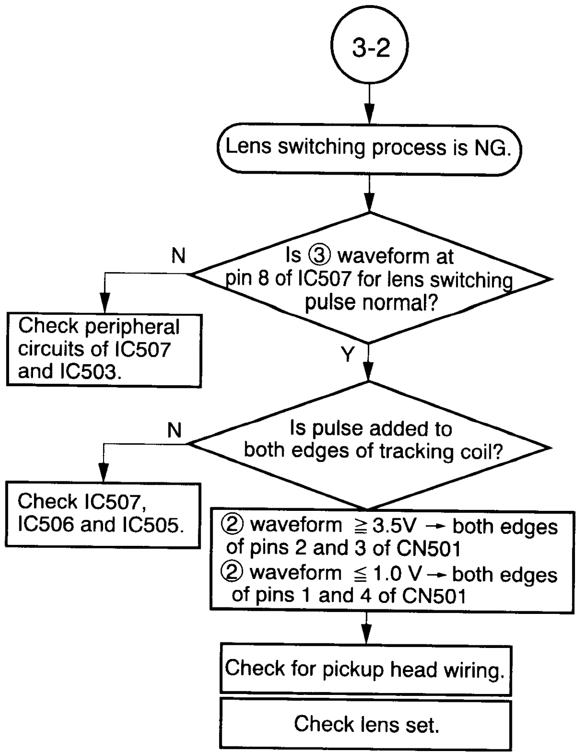

3-2
Lens switching process is NG.
N
Is ③ waveform at pin 8 of IC507 for lens switching pulse normal?
Check peripheral circuits of IC507 and IC503.
Y
N
Is pulse added to both edges of tracking coil?
Check IC507, IC506 and IC505.
② waveform ≧3.5V → both edges of pins 2 and 3 of CN501
② waveform ≦ 1.0 V → both edges of pins 1 and 4 of CN501
Check for pickup head wiring.
Check lens set.

Fig. 1-3-5

DVD → CD lens switching waveform

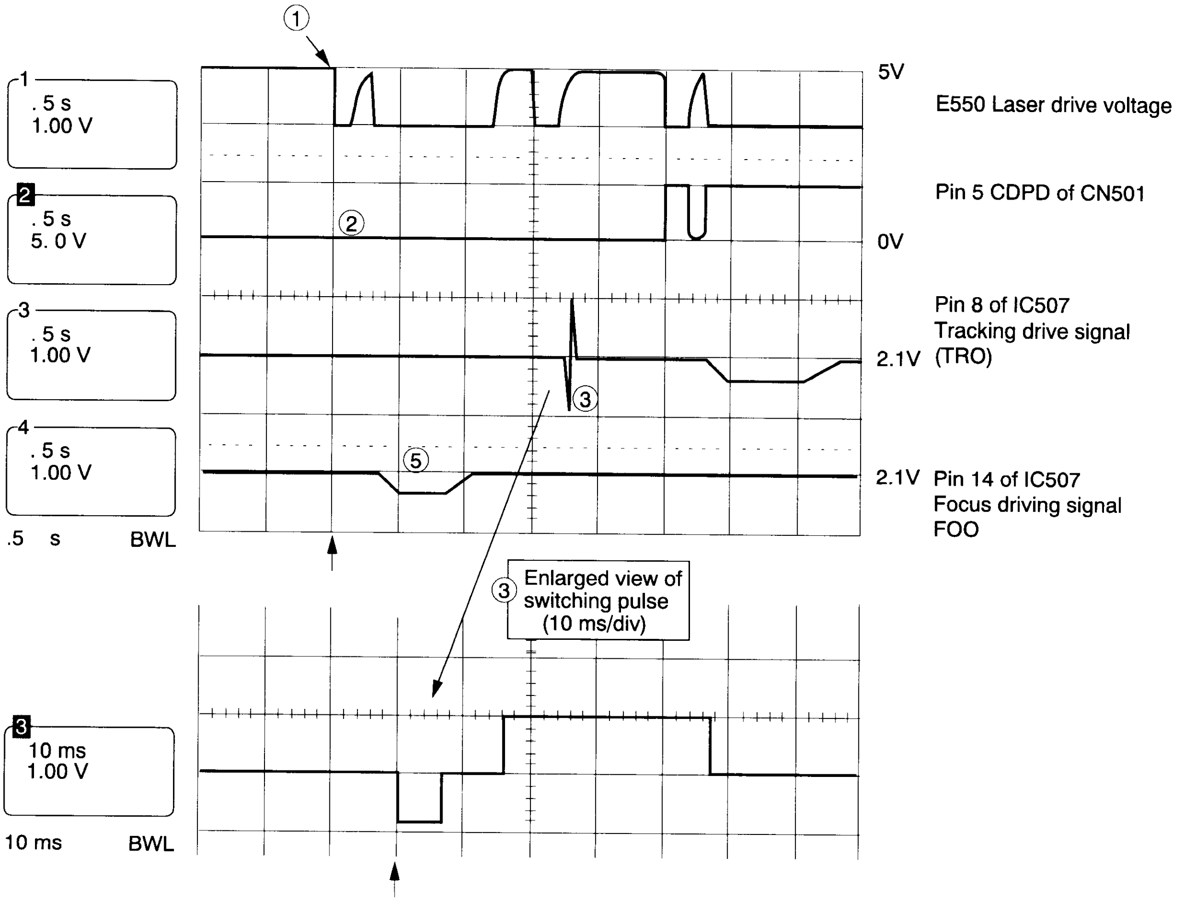


Fig. 1-3-6

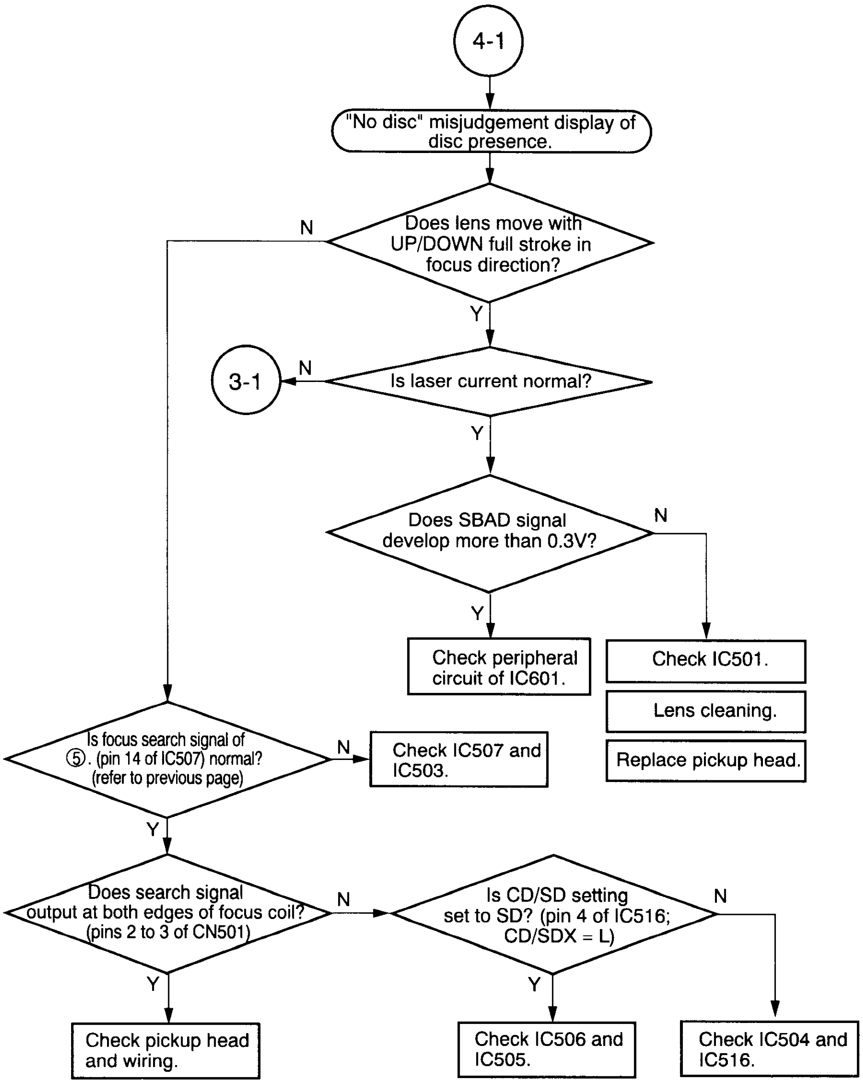

4-1
"No disc" misjudgement display of disc presence.
Does lens move with UP/DOWN full stroke in focus direction?
N
Y
3-1
N
Is laser current normal?
Y
Does SBAD signal develop more than 0.3V?
N
Y
Check peripheral circuit of IC601.
Check IC501.
Lens cleaning.
Replace pickup head.
Is focus search signal of ⑤. (pin 14 of IC507) normal? (refer to previous page)
N
Check IC507 and IC503.
Y
Does search signal output at both edges of focus coil? (pins 2 to 3 of CN501)
N
Is CD/SD setting set to SD? (pin 4 of IC516; CD/SDX = L)
N
Y
Y
Check pickup head and wiring.
Check IC506 and IC505.
Check IC504 and IC516.

Fig. 1-3-7

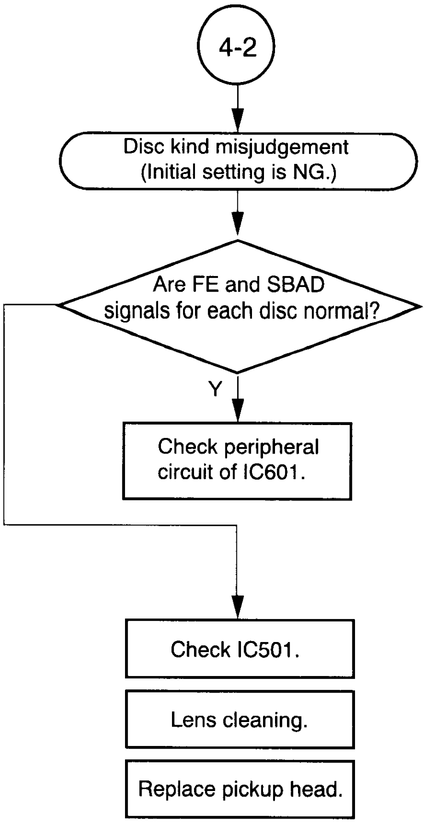

4-2
Disc kind misjudgement (Initial setting is NG.)
Are FE and SBAD signals for each disc normal?
Y
Check peripheral circuit of IC601.
Check IC501.
Lens cleaning.
Replace pickup head.

Fig. 1-3-8

The waveforms shown below appear in an instance, so the precise trigger is necessary.

DVD single (single-layer) disc detection waveform

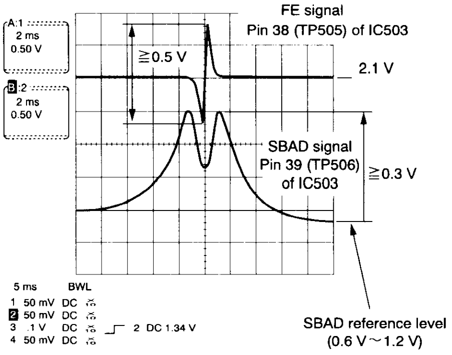


Fig. 1-3-9

DVD dual (dual-layer) disc detection waveform

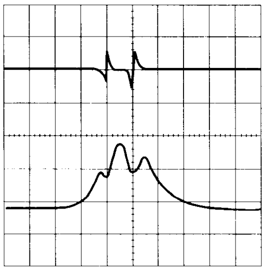


Fig. 1-3-10

CD disc detection waveform

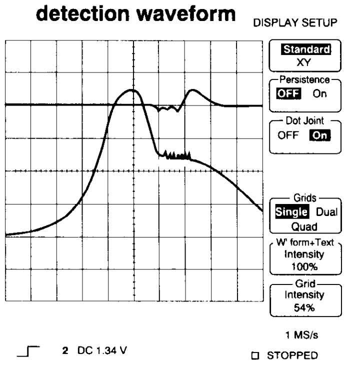


Fig. 1-3-11

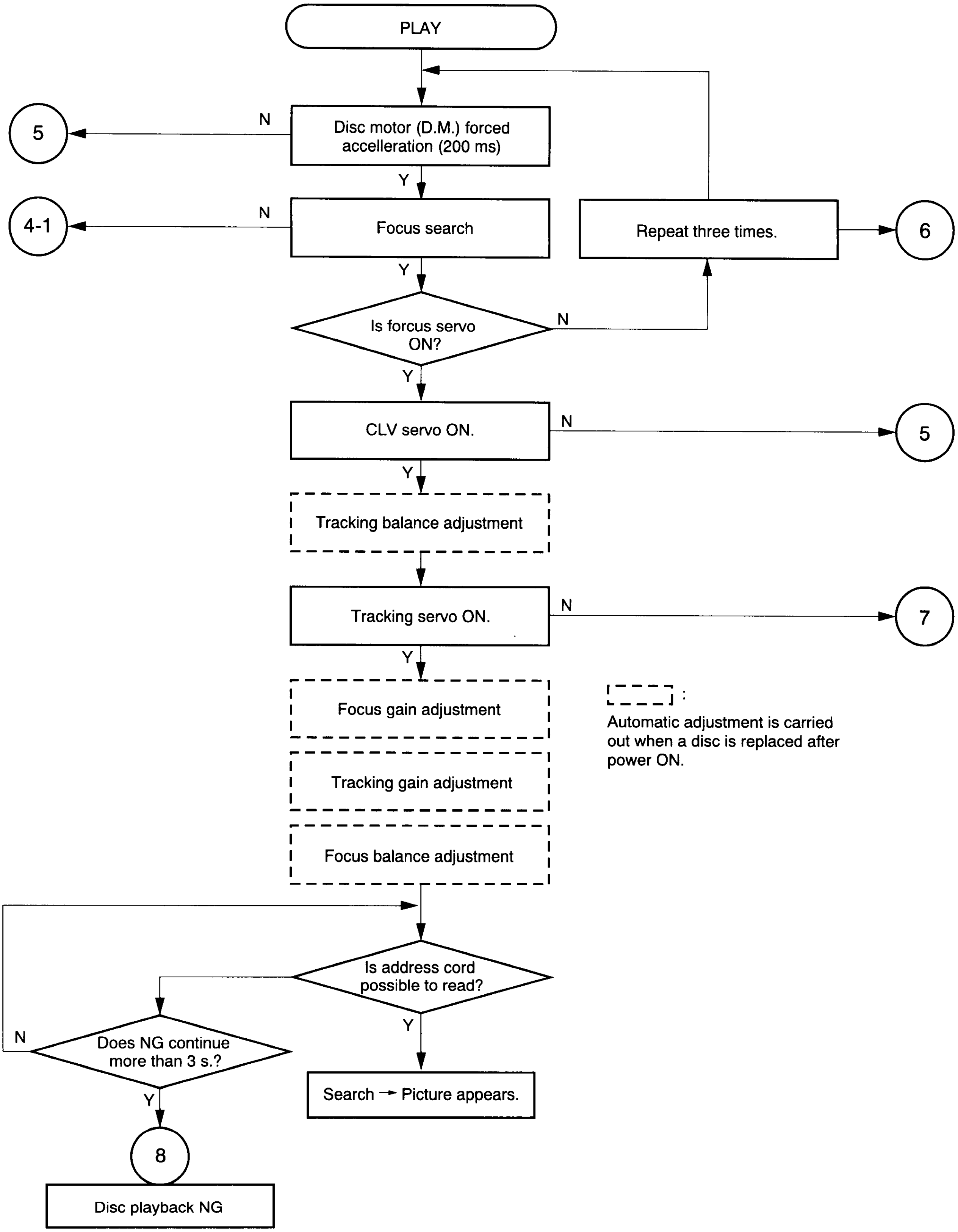

PLAY
Disc motor (D.M.) forced accelleration (200 ms)
N
5
Y
Focus search
N
4-1
Y
Is forcus servo ON?
N
Repeat three times.
6
Y
CLV servo ON.
N
5
Y
Tracking balance adjustment
Tracking servo ON.
N
7
Y
Focus gain adjustment
Tracking gain adjustment
Focus balance adjustment
Automatic adjustment is carried out when a disc is replaced after power ON.
Is address cord possible to read?
Y
Search → Picture appears.
Does NG continue more than 3 s.?
N
Y
8
Disc playback NG

Fig. 1-3-12

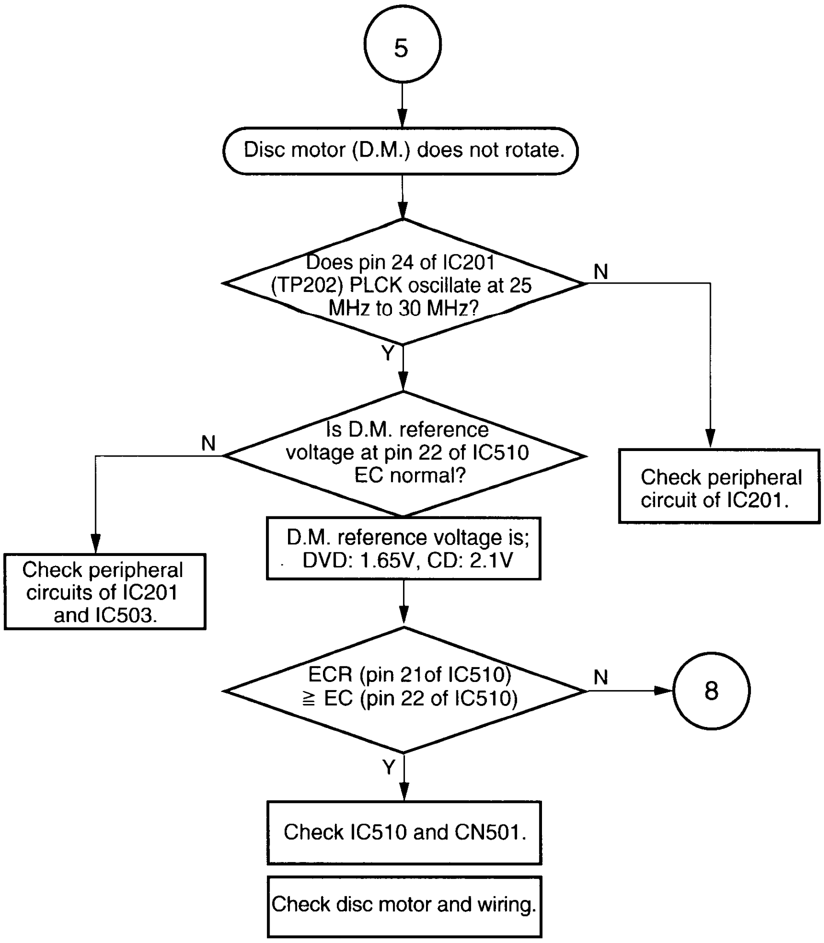

5
Disc motor (D.M.) does not rotate.
Does pin 24 of IC201 (TP202) PLCK oscillate at 25 MHz to 30 MHz?
N
Y
Check peripheral circuit of IC201.
Is D.M. reference voltage at pin 22 of IC510 EC normal?
N
Check peripheral circuits of IC201 and IC503.
D.M. reference voltage is; DVD: 1.65V, CD: 2.1V
ECR (pin 21of IC510) ≧ EC (pin 22 of IC510)
N
8
Y
Check IC510 and CN501.
Check disc motor and wiring.

Fig. 1-3-13

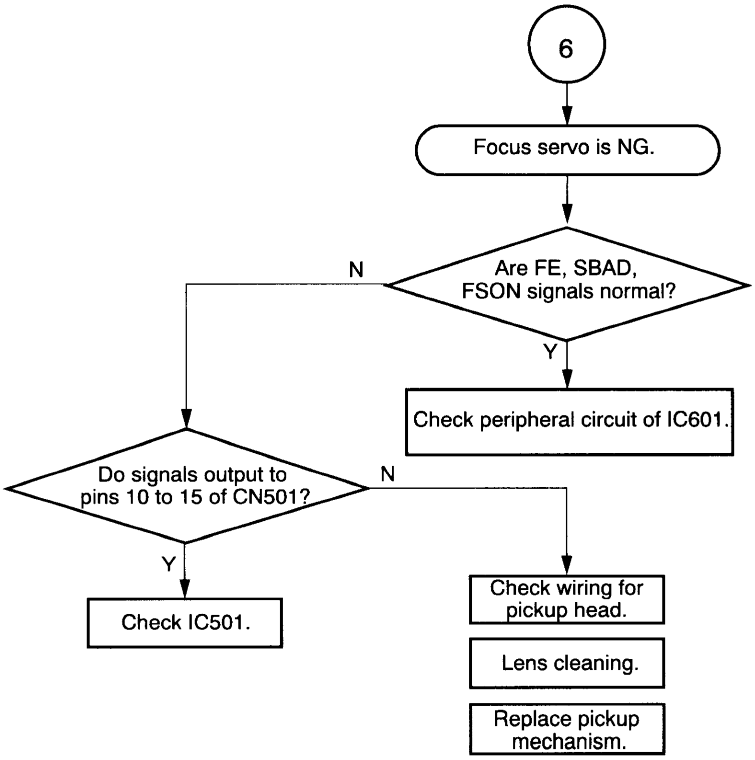

6
Focus servo is NG.
Are FE, SBAD, FSON signals normal?
N
Y
Check peripheral circuit of IC601.
Do signals output to pins 10 to 15 of CN501?
N
Y
Check IC501.
Check wiring for pickup head.
Lens cleaning.
Replace pickup mechanism.

Fig. 1-3-14

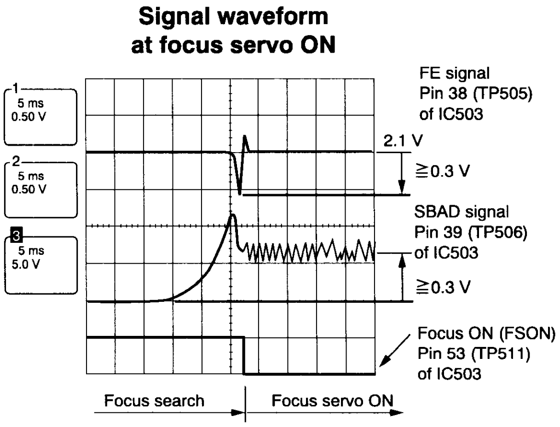


Fig. 1-3-15

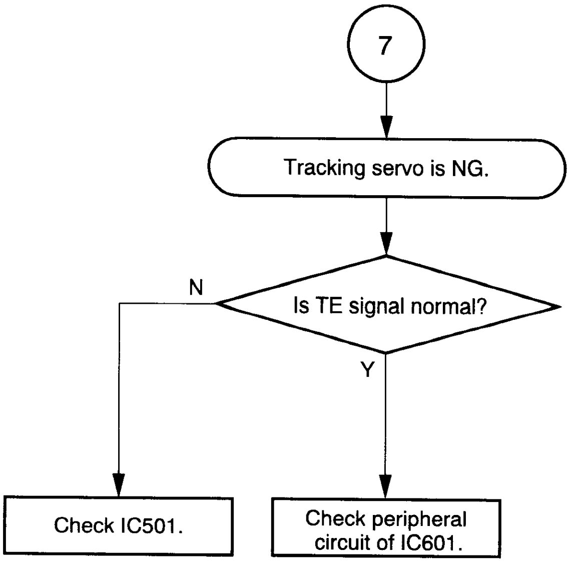

7
Tracking servo is NG.
Is TE signal normal?
N
Y
Check IC501.
Check peripheral circuit of IC601.

Fig. 1-3-16

Signal waveform at tracking servo ON (CD)

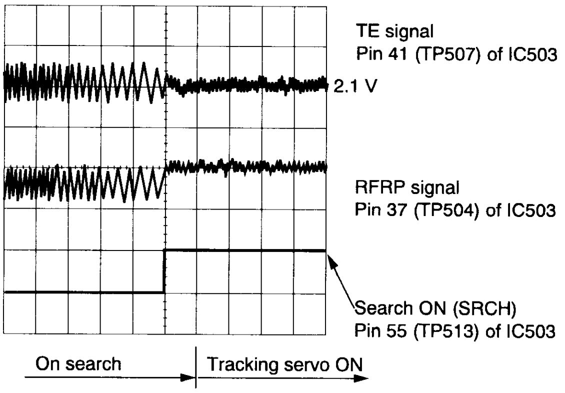


Fig. 1-3-17

Signal waveform at tracking servo ON (DVD)

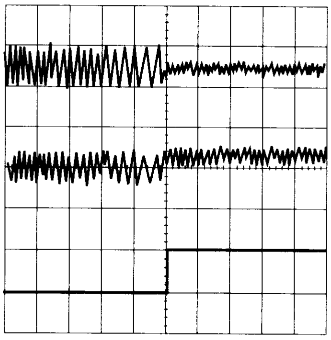


Fig. 1-3-18

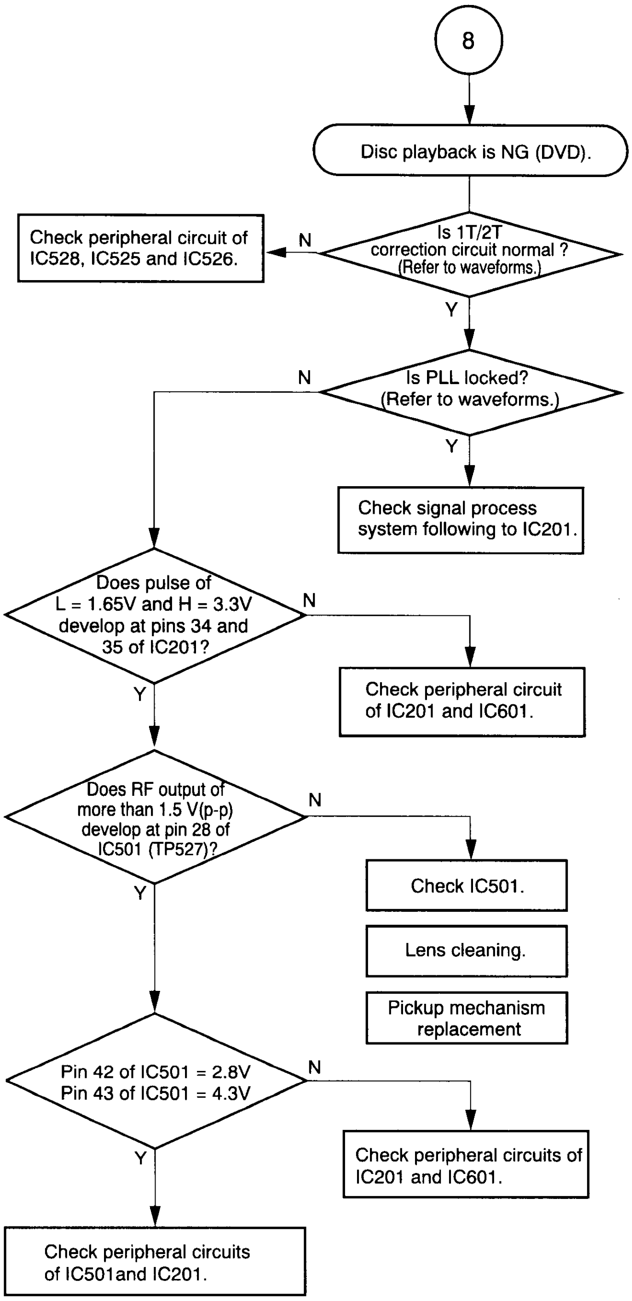
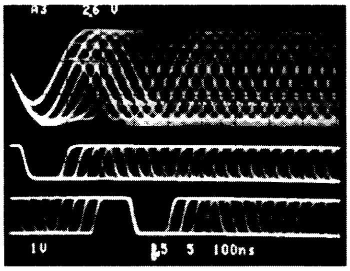

8
Disc playback is NG (DVD).
Is 1T/2T correction circuit normal ? (Refer to waveforms.)
N
Check peripheral circuit of IC528, IC525 and IC526.
Y
Is PLL locked? (Refer to waveforms.)
N
Y
Check signal process system following to IC201.
Does pulse of L = 1.65V and H = 3.3V develop at pins 34 and 35 of IC201?
N
Check peripheral circuit of IC201 and IC601.
Y
Does RF output of more than 1.5 V(p-p) develop at pin 28 of IC501 (TP527)?
N
Check IC501.
Lens cleaning.
Pickup mechanism replacement
Y
Pin 42 of IC501 = 2.8V
Pin 43 of IC501 = 4.3V
N
Check peripheral circuits of IC201 and IC601.
Y
Check peripheral circuits of IC501and IC201.

Fig. 1-3-19

DVD playback waveform
1T/2T correction



DVD RF signal
Pin 28 (TP527) of IC501

DVD SLD
Pin 32 (TP209) of IC201

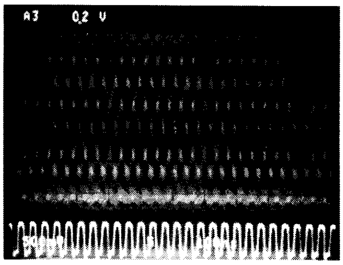
DVD RFD
Pin 31 (TP208) of IC201

CH1: TP527 DVDRF 1 V/div
CH2: TP209 DVDSLD 5 V/div
CH3: TP208 DVDRFD 5 V/div
100 ns/div

Fig. 1-3-20

PLL works as a servo loop to generate a clock signal for reading RF signal binary data. With the PLL locked, the eye pattern is identified clearly when triggered with the read clock PLCK.

DVD playback waveform



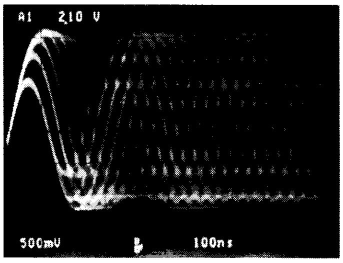
DVD RF signal
Pin 28 (TP527) of IC501

DVD PLCK
Pin 24 (TP202) OF IC201

CH1: TP527 DVDRF 500 mV/div
CH2: TP202 DVDPLCK 5 V/div
100 ns/div

Fig. 1-3-21

DVD RF signal

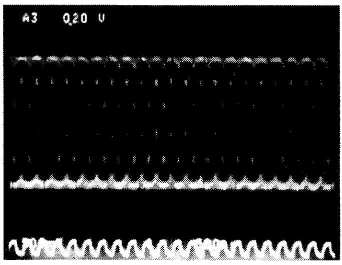


DVD RF signal
Pin 28 (TP527) of IC501

V: 500 mV/div
H: 100 ns/div

Fig. 1-3-22

CD playback waveform



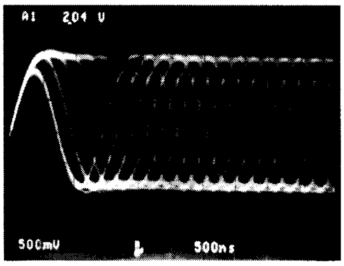
CD RF signal
Pin 28 (TP527) of IC501

CD PLCK
Pin 24 (TP202) of IC201

CH1: TP527 CDRF 500 mv/div
CH2: TP202 CDPLCK 5 V/div
500ns/div

Fig. 1-3-23

CD RF signal



CD RF signal
Pin 28 (TP527) of IC501

V: 500 mV/div
H: 500 ns/div

Fig. 1-3-24

3-1-2. Location Diagram of Servo Test Point

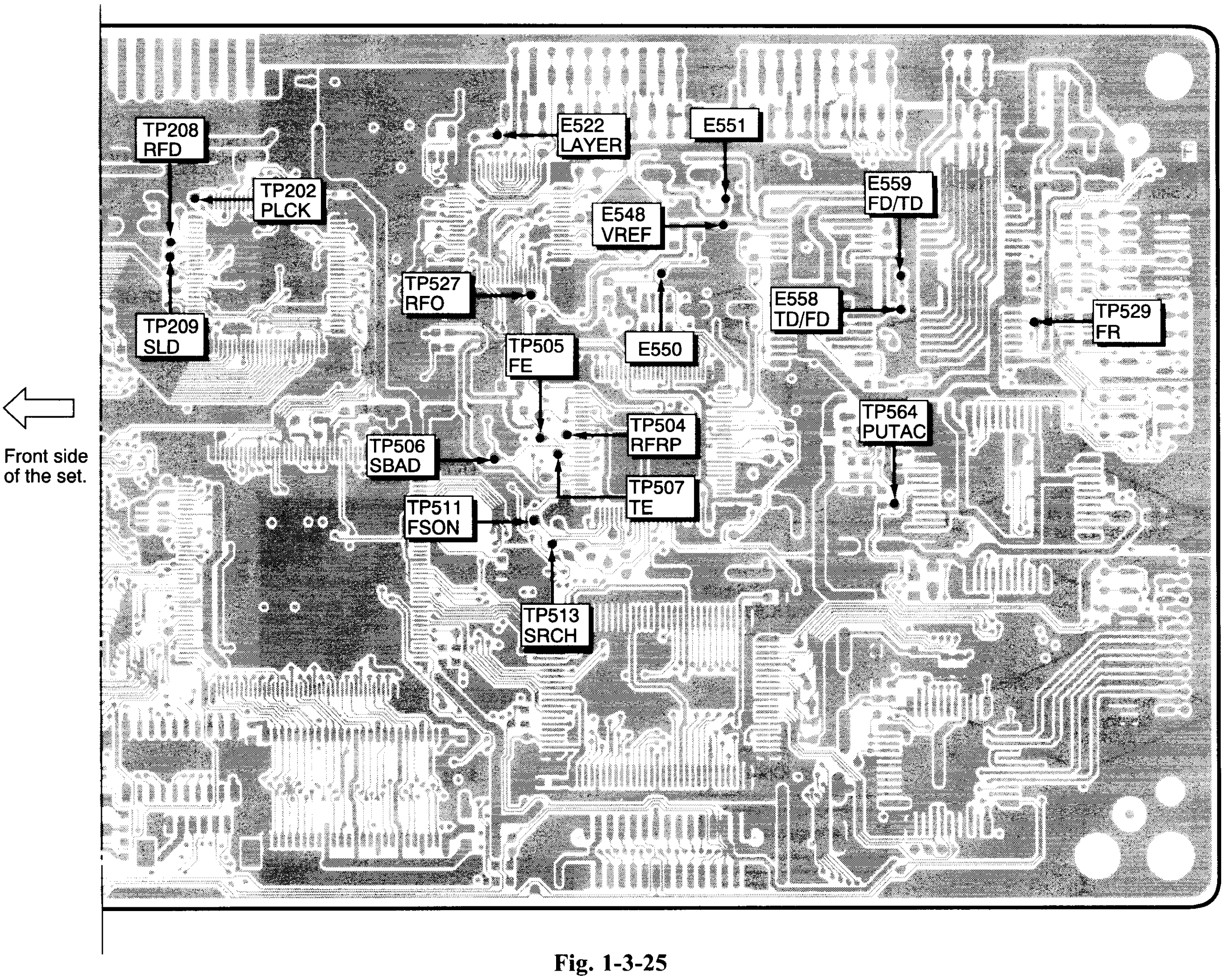

TP208
RFD
TP202
PLCK
E522
LAYER
E551
E548
VREF
E559
FD/TD
TP527
RFO
E558
TD/FD
TP529
FR
TP209
SLD
TP505
FE
E550
TP564
PUTAC
TP504
RFRP
TP506
SBAD
TP507
TE
TP511
FSON
TP513
SRCH
Front side
of the set.

Fig. 1-3-25

SECTION 2
PART REPLACEMENT AND ADJUSTMENT PROCEDURES

CAUTIONS BEFORE STARTING SERVICING

Electronic parts are susceptible to static electricity and may easily damaged, so do not forget to take a proper grounding treatment as required.

Many screws are used inside the unit. To prevent missing, dropping, etc. of the screws, always use a magnetized screwdriver in servicing. Several kinds of screws are used and some of them need special cautions. That is, take care of the tapping screws securing molded parts and fine pitch screws used to secure metal parts. If they are used improperly, the screw holes will be easily damaged and the parts can not be fixed.

1. REPLACEMENT OF MECHANICAL PARTS

1-1. Cabinet Replacement

1-1-1. Top Cover

1. Remove five screws (1) and remove the top cover (2).

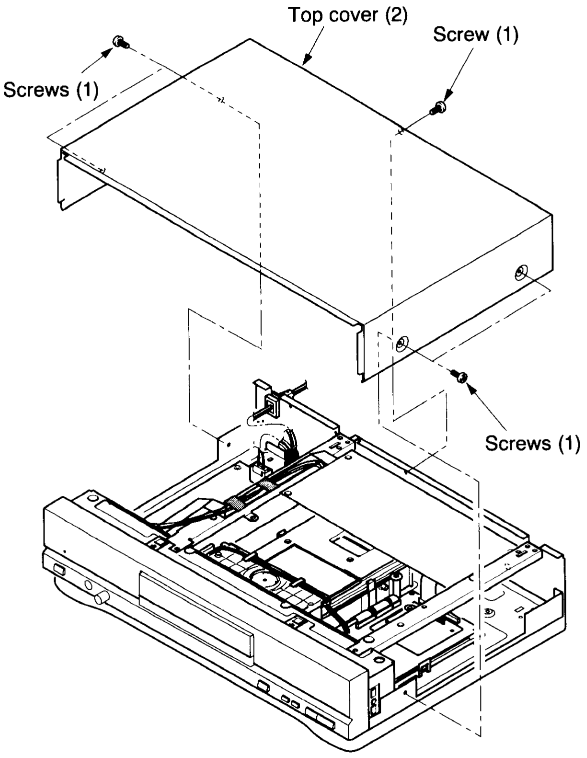


Fig. 2-1-1

1-1-2. Tray

1. Remove two screws (2) of the tray (1) .
2. Push the portion (A) in Fig. 2-1-2 using a screwdriver, etc. and release the lock of the tray (1).
3. Pull out the tray (1) after moving the tray (1) in forward direction.

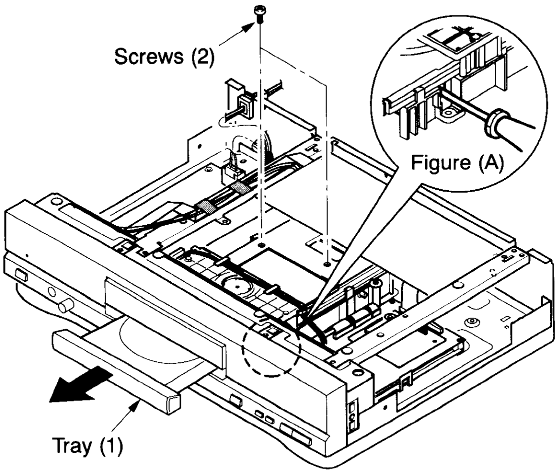


Fig. 2-1-2

1-1-3. Tray Panel

1. Releasing the claws pushing in the arrow (A) direction, push down the tray panel (1) in the arrow (B) direction. And the tray panel (1) is removed from the tray (2).
2. When mounting the tray panel (1), fit the tray panel (1) into the groove on both sides until it clicks.

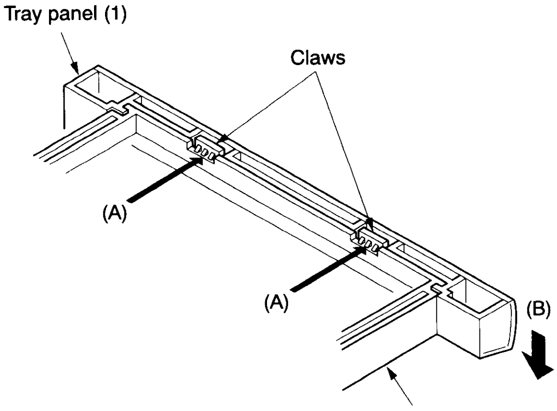


Fig. 2-1-3

1-1-4. Bottom Plate

1. Turn over the unit upside down.
2. Remove seven screws (1) and remove the bottom plate (2).
3. Remove four screws (3) and remove the bottom plate (4).

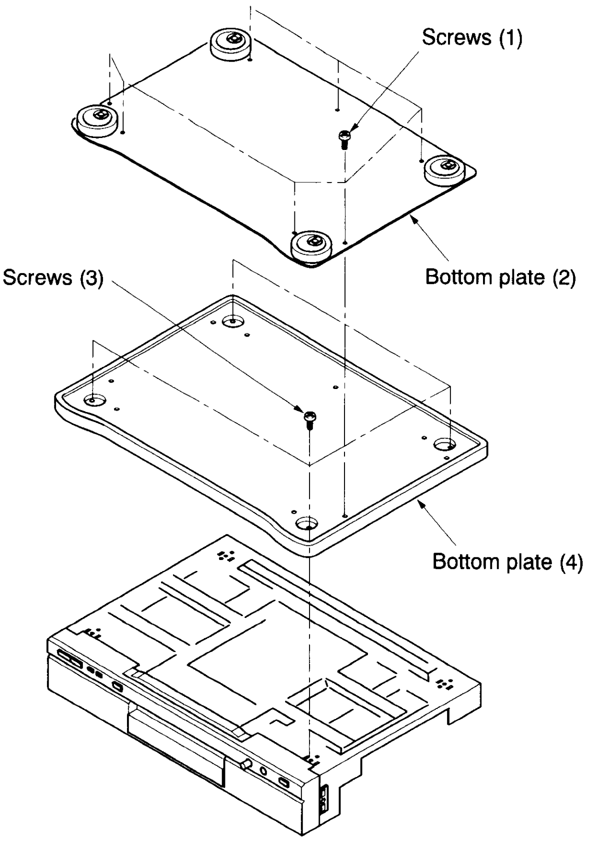

Screws (1)
Screws (3)
Bottom plate (2)
Bottom plate (4)

Fig. 2-1-4

1-1-5. Front Panel

1. Eject the tray. (If the tray does not move, pull out the tray by referring to Fig. 2-1-2.)
2. Remove the tray panel. (Refer to item 1-1-3.)
3. Remove two bottom plates. (Refer to item 1-1-4.)
4. Remove two screws (1).
5. Remove one screw (2) and remove the GND leads (3).
6. Remove the flexible cables (4) and (5).
7. Remove the bush (6).
8. Remove the connector (7).
9. Cut out the code band (9) with the power switch cable (8) held.
10. Remove the power switch cable (8) from two code clamps (10).
11. Remove the front panel (11) by releasing four claws (A).

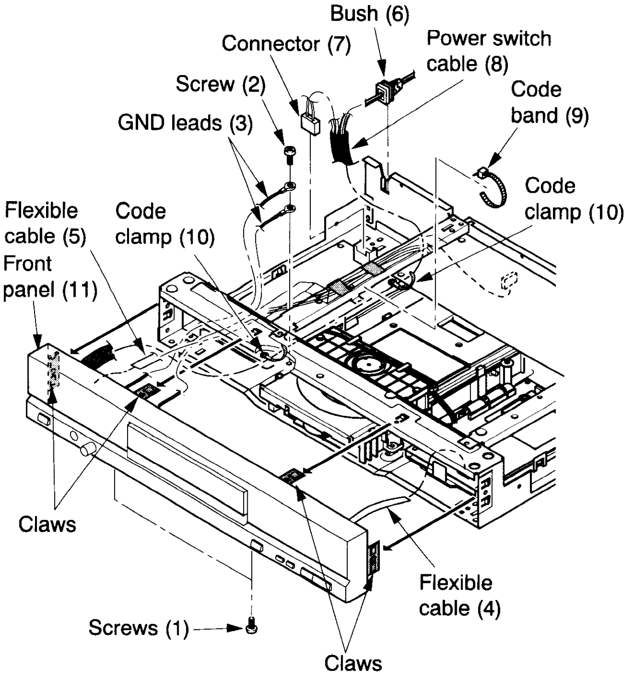

Bush (6)
Connector (7)
Power switch cable (8)
Screw (2)
Code band (9)
GND leads (3)
Code clamp (10)
Flexible cable (5)
Code clamp (10)
Front panel (11)
Claws
Flexible cable (4)
Screws (1)
Claws

Fig. 2-1-5

1-1-6. Rear Panel

1. Remove the bush (1) for power supply code.
2. Remove three screws (2) and six screws (3).
3. Remove two screws (4) and remove the rear panel (5).

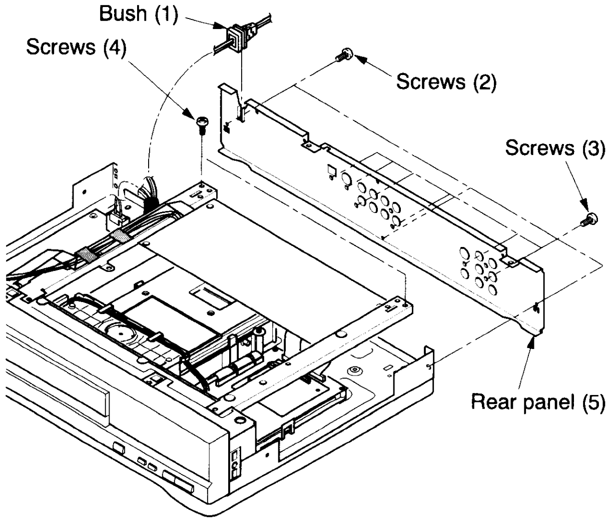

Bush (1)
Screws (4)
Screws (2)
Screws (3)
Rear panel (5)

Fig. 2-1-6

1-2. PC Board Replacement

1-2-1. Output PC Board

1. Remove six screws (1). (Refer to item 1-1-5.)
2. Peel off the tape A with the flexible cable (2) and connector (3) held.
3. Remove two screws (4) and lift up the output PC board (5).
4. Peel off the tape B with the flexible cable (6) held.
5. Remove the flexible cables (2), (6), (7), (8) and the wire connector (3). Remove the output PC board (5).

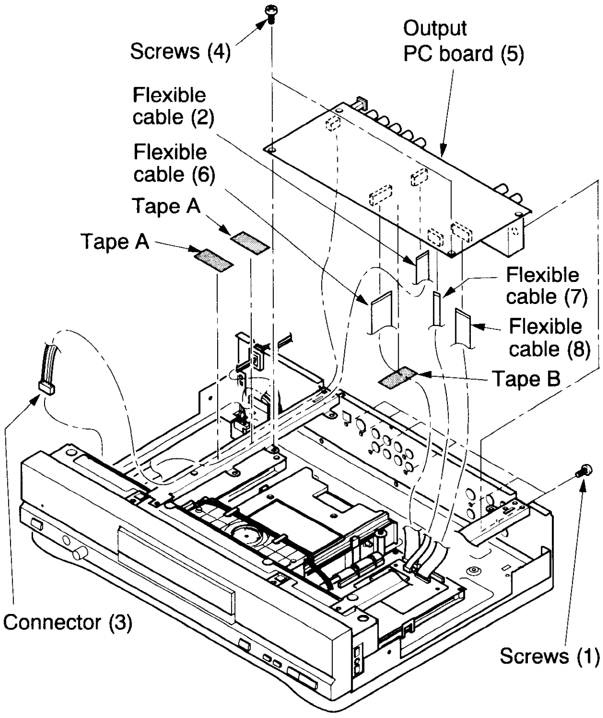

Screws (4)
Output PC board (5)
Flexible cable (2)
Flexible cable (6)
Tape A
Tape A
Flexible cable (7)
Flexible cable (8)
Tape B
Connector (3)
Screws (1)

Fig. 2-1-7

Note:

- When mounting the output PC board, bend the flexible cable (2) as shown in Fig. 2-1-8.

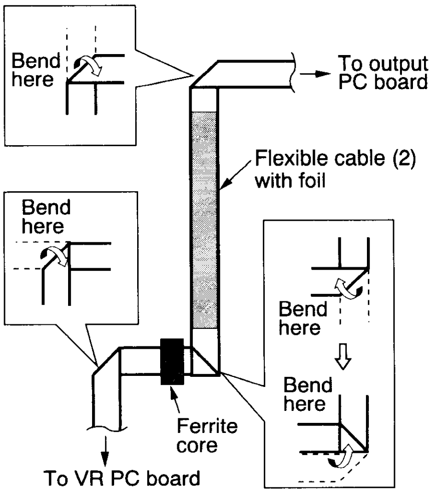

Bend here
To output PC board
Flexible cable (2) with foil
Bend here
Bend here
Bend here
Ferrite core
To VR PC board

Fig. 2-1-8

1-2-2. Main and Sub Video PC Boards

Note:

- Before removing the main PC board (2), be sure to short-circuit the laser diode output land. After replacing the PC board, open the land after inserting the flexible cables (1). (Refer to Fig. 2-1-10.)

1. Remove the top cover. (Refer to item 1-1-1.)
2. Remove the output PC board (Refer to item 1-2-1.)
3. Remove the flexible cables (1) connected to the main PC board (2) and the connector (3). (Each cable is connected to the locations (A) to (E).)
4. Remove four screws (4), and remove the main PC board (2) and the stay (5).
5. Release two claws (A) of the stay (5) and remove the main PC board (2).
6. Push the claw (B) of PC board clip (6) and release the claw (B). Then, remove the connector (7) and remove the sub video PC board (8).
7. When mounting, align the main PC board (2), the stay (5) and the appropriate hole of each screw, and tighten the screws (4).

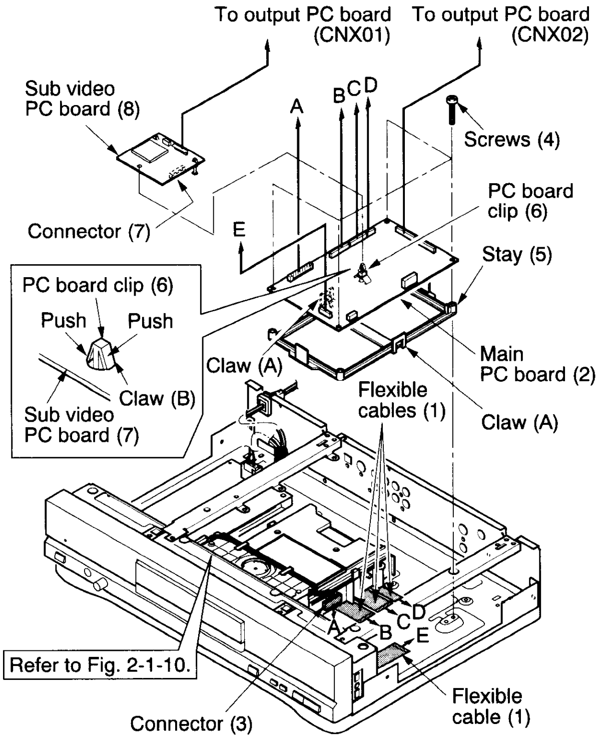

To output PC board (CNX01)
To output PC board (CNX02)
Sub video PC board (8)
A
B
C
D
Screws (4)
PC board clip (6)
Connector (7)
E
Stay (5)
PC board clip (6)
Push
Push
Claw (A)
Claw (B)
Sub video PC board (7)
Main PC board (2)
Flexible cables (1)
Claw (A)
A
B
C
D
E
Refer to Fig. 2-1-10.
Connector (3)
Flexible cable (1)

Fig. 2-1-9

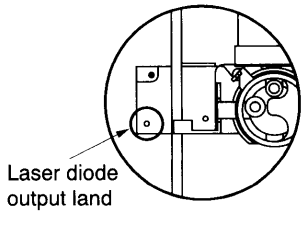

Laser diode output land

Fig. 2-1-10

1-2-3. Power Supply PC Board

1. Remove the connector (2) connecting to the main PC board (1).

   Remove the lead wires of the connector (2), which are clamped by the code clips at four locations where are on the clamper stay (3) of the code clamps (4).
2. Remove the power switch cable (5) from the code clamps (6).
3. Remove four screws (7), the connector (8) and the power supply code connector (9). Remove the power supply PC board (10) and the stay (11).
4. Release two claws of the stay (11) and the power supply PC board (10).
5. When mounting, align the power supply PC board (10), the stay (11) and the appropriate hole of each screw, and tighten the screws (7).

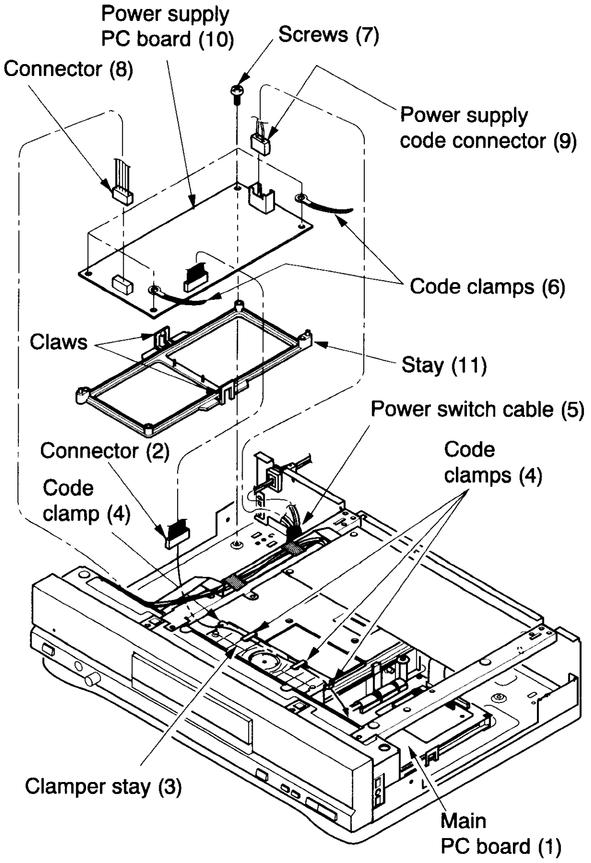

Power supply PC board (10)
Screws (7)
Connector (8)
Power supply code connector (9)
Code clamps (6)
Claws
Stay (11)
Power switch cable (5)
Connector (2)
Code clamp (4)
Code clamps (4)
Clamper stay (3)
Main PC board (1)

Fig. 2-1-11

1-2-4. Front Display, H.P AMP and Power Switch PC Boards

1. Remove the front panel. (Refer to item 1-1-5.)
2. Remove six screws (1) and release two claws (A). Remove the front display PC board (2).
3. Remove two screws (3) and release two claws (B), and remove the power switch PC board (4).
4. Remove three screws (5) and remove the headphone AMP PC board (6).
5. Remove two screws (7) and remove the power switch (8).

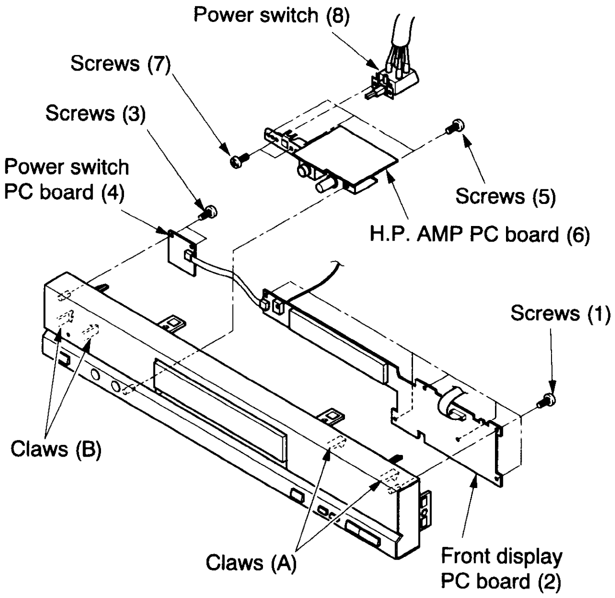

Power switch (8)
Screws (7)
Screws (3)
Power switch PC board (4)
Screws (5)
H.P. AMP PC board (6)
Screws (1)
Claws (B)
Claws (A)
Front display PC board (2)

Fig. 2-1-12

1-3. Mechanism Parts Replacement

1-3-1. Mechanism Chassis Assembly

Note:

- Before removing the cable, be sure to short the laser diode output land. After replacing the mechanism chassis assembly, open the land after inserting the flexible cable and connector.

1. Remove the tray. (Refer to item 1-1-2.)
2. Remove three screws (1), and remove the mechanism chassis assembly (2).

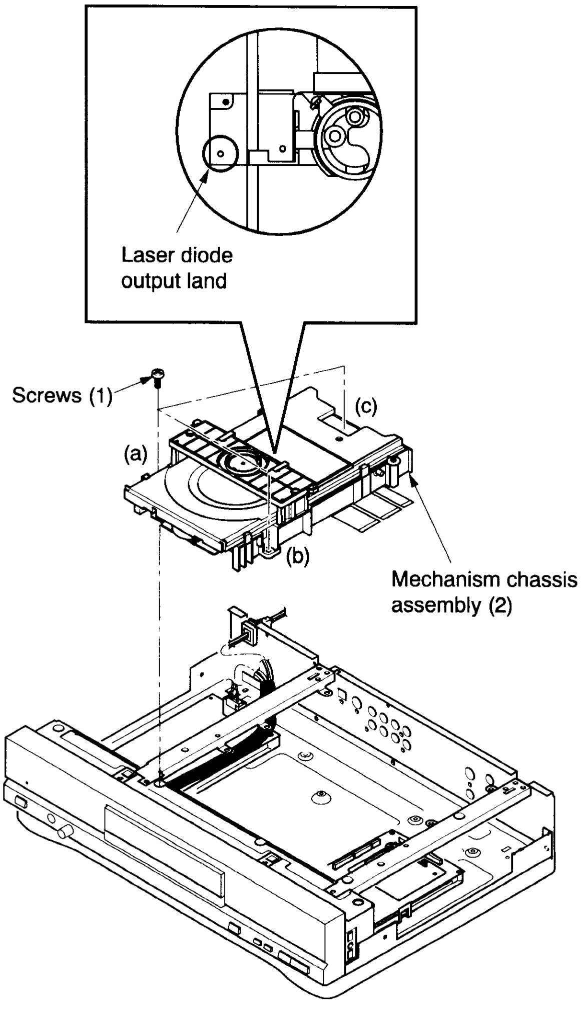

Laser diode
output land
Screws (1)
(a)
(b)
(c)
Mechanism chassis
assembly (2)

Fig. 2-1-13

Note:

- When mounting mechanism chassis assembly (2), tighten the screws (1), (a) to (c) in order.

1-3-2. Loading Motor and Detection Switch

<Removal>

1. Peel off the tape (1) fixing the flexible cable (2).
2. Desolder the loading motor terminal.
3. Loosen three molded claws (3), and remove the loading motor PC board (4). (Refer to Fig. 2-1-14.)
4. Desolder and remove the detection switch (5).
5. Remove the loading belt (6). (Refer to Fig. 2-1-15.)
6. Remove two screws (7), and remove the loading motor (8).

<Mounting>

1. Align the positioning hole of a new loading motor (8) to the hole into which the chassis positioning boss is inserted, and fix the motor with two screws (7). (Refer to Fig. 2-1-15.)
2. Perform the reverse steps of removal described above for mounting.

Notes:

- When mounting the loading motor PC board (4), insert the end of the detection switch (5) into the notch of the kick lever. (Refer to Fig. 2-1-14.)
- When mounting the loading belt (6), take care not to twist the belt or touch grease.
- Be sure to open the molded claws (3) manually when mounting the loading motor PC board (4).

  When the loading motor PC board (4) is pushed in directly without opening the molded claws (3), the molded claws (3) may be destroyed.

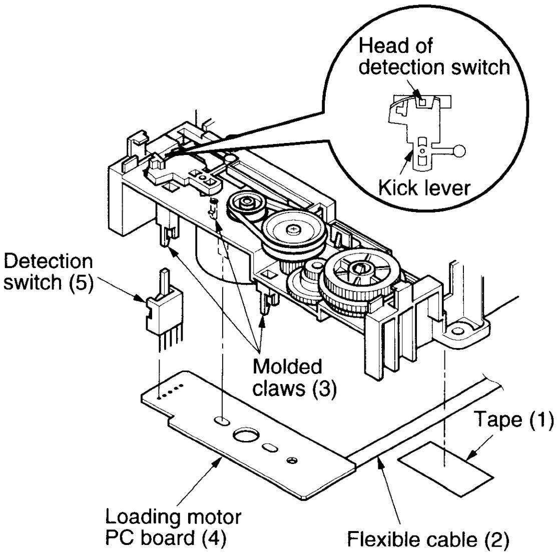

Head of
detection switch
Kick lever
Detection
switch (5)
Molded
claws (3)
Tape (1)
Loading motor
PC board (4)
Flexible cable (2)

Fig. 2-1-14

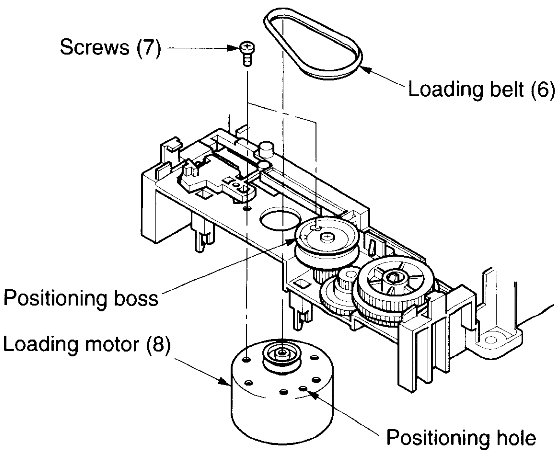

Screws (7)
Loading belt (6)
Positioning boss
Loading motor (8)
Positioning hole

Fig. 2-1-15

1-3-3. Pickup Mechanism Assembly

<Removal>

1. Remove two screws (1), and remove the clamper stay (2).
2. Remove the 21P flexible cable (3). (This is not locked, and can be removed simply by pulling.)
3. Remove two screws (4), and remove the sub chassis (5) (with the pickup mechanism assembly).
4. Remove four screws (6), and remove the pickup mechanism assembly (7).
5. Remove the 19P flexible cable (8).

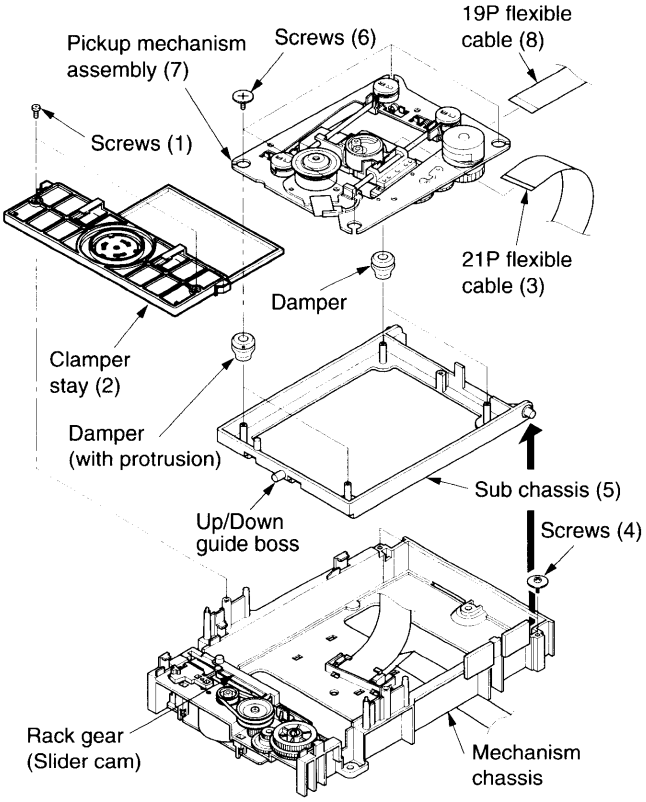

Pickup mechanism assembly (7)
Screws (6)
19P flexible cable (8)
Screws (1)
Damper
21P flexible cable (3)
Clamper stay (2)
Damper (with protrusion)
Sub chassis (5)
Up/Down guide boss
Screws (4)
Rack gear (Slider cam)
Mechanism chassis

Fig. 2-1-16

<Wiring of the flexible cable>

It is necessary to bend the flexible wire of the mechanism chassis when wiring. When bending the flexible wire, perform the procedure referring to Fig. 2-1-17.

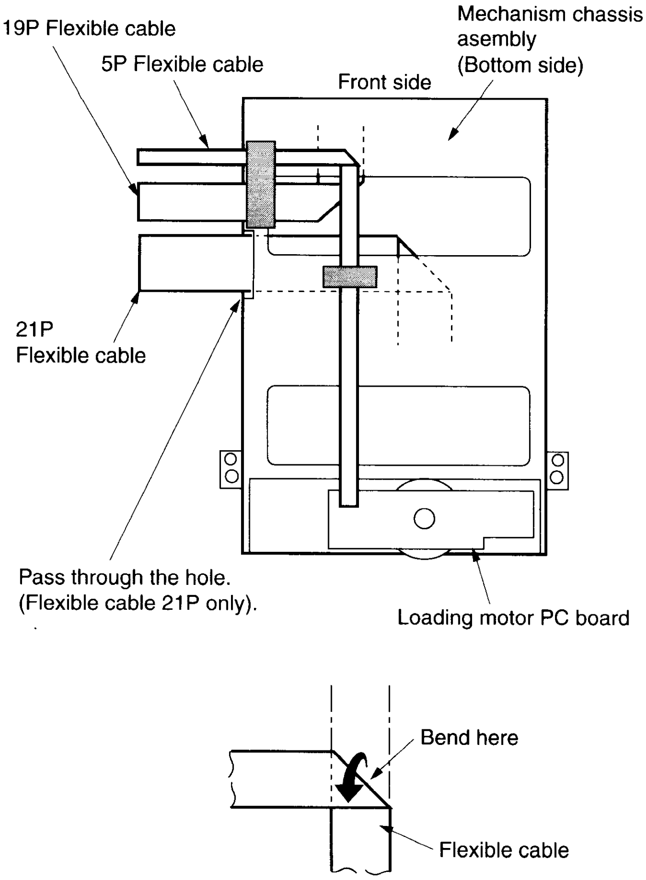

19P Flexible cable
5P Flexible cable
Mechanism chassis asembly (Bottom side)
Front side
21P Flexible cable
Pass through the hole. (Flexible cable 21P only).
Loading motor PC board
Bend here
Flexible cable

Fig. 2-1-17

<Removal of connector with the flexible cable lock>

Pull the connector slider in the direction of the arrow with your fingers. The connector is unlocked, and the 19P flexible cable (8) can be removed.

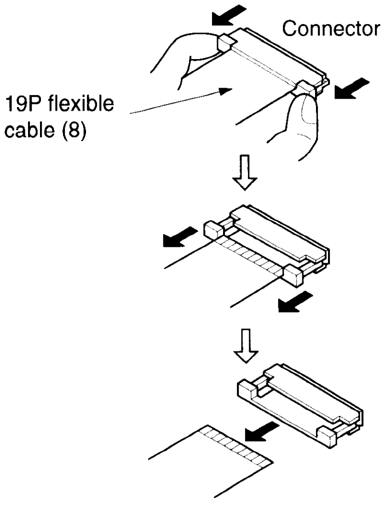

Connector
19P flexible cable (8)

Fig. 2-1-18

<Mounting>

1. Replace the pickup mechanism assembly (7). (Refer to Fig. 2-1-16.)
2. Face the correct side of the 19P flexible cable (8) up and connect it to a new pickup mechanism assembly (7). (Face the metallic side of the pickup mechanism assembly (7) up viewing it from the rear side, insert it into the connector, and lock it by sliding the connector in the direction shown by the arrow.)

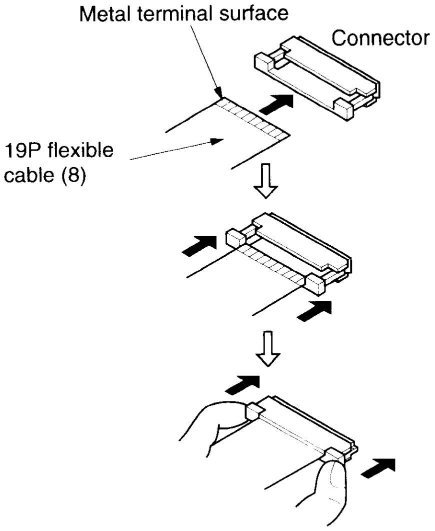

Metal terminal surface
Connector
19P flexible cable (8)

Fig. 2-1-19

3. Perform the reverse steps of removal described on previous page for mounting.

Note:

- When fixing the pickup mechanism assembly (7) with four screws (6), take care not to catch the damper. Push the mechanism assembly (7) down and loosen the damper, and tighten the screws (6).

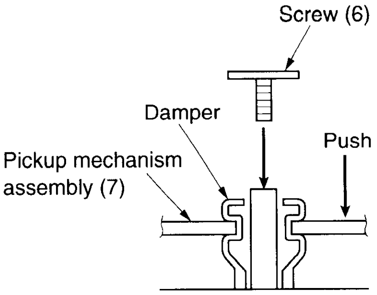

Screw (6)
Damper
Push
Pickup mechanism assembly (7)

Fig. 2-1-20

- Use the damper with a protrusion (2 locations) in the disc motor, and use a damper without a protrusion on the rear side.

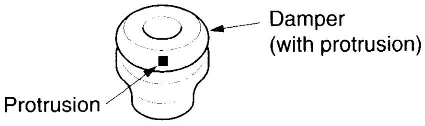

Damper (with protrusion)
Protrusion

Fig. 2-1-21

- When mounting the sub chassis (5) (with the pickup mechanism assembly), insert the Up/Down guide boss into the cam slider Up/Down cam.

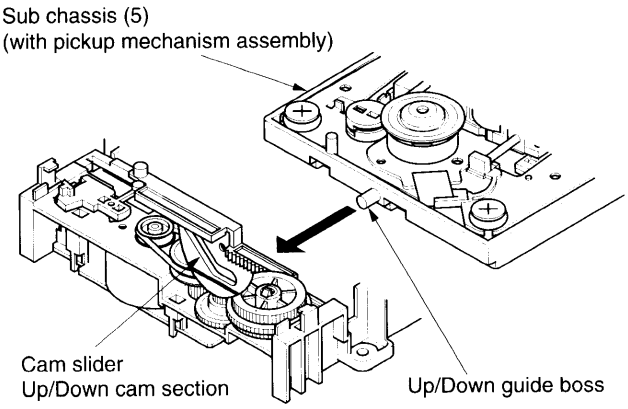

Sub chassis (5) (with pickup mechanism assembly)
Cam slider Up/Down cam section
Up/Down guide boss

Fig. 2-1-22

1-3-4. Gear B Assembly, Gear A, Feed Motor Gear Assembly and Rack Gear Assembly

<Removal>

1. Remove the pickup mechanism assembly. (Refer to item 1-3-3.)
2. Remove the polyslider washer (1), and remove the gear B assembly (2). (Refer to Fig. 2-1-23.)
3. Remove one screw (3), and remove the gear A (4).

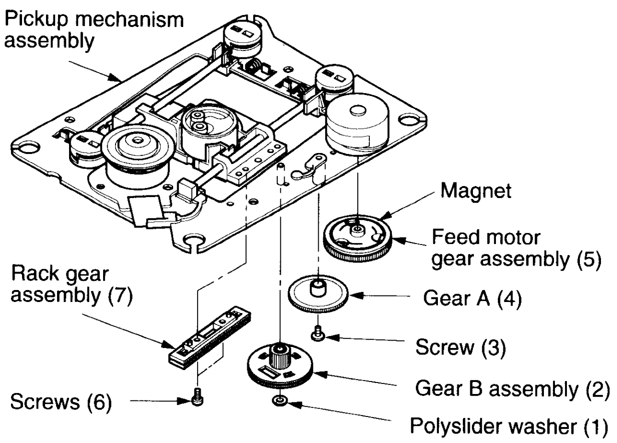

Pickup mechanism assembly
Magnet
Feed motor gear assembly (5)
Rack gear assembly (7)
Gear A (4)
Screw (3)
Gear B assembly (2)
Screws (6)
Polyslider washer (1)

Fig. 2-1-23

4. Remove the feed motor gear assembly (5) using a screwdriver, etc. with care taken not to break the magnet. (Refer to Fig. 2-1-23.)

Note:

- Apply lightly the screwdriver, etc. end to the gear shaft and push upward, and pull out the feed motor gear assembly (5).

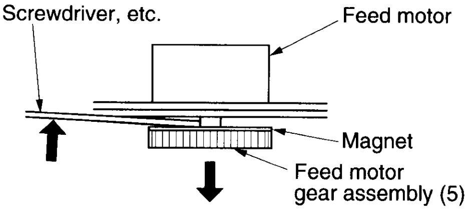

Screwdriver, etc.
Feed motor
Magnet
Feed motor gear assembly (5)

Fig. 2-1-24

5. Remove two screws (6), and remove the rack gear assembly (7). (Refer to Fig. 2-1-23.)

<Mounting>

1. Perform the reverse steps of removal described on the left column for mounting.
2. Push the pickup head (8) to the disc motor side (in the arrow (A) direction), and push and slide the upper gear of the rack gear assembly (7) (in the arrow (B) direction).
3. Align the positioning holes of the upper and lower gears of the gear B assembly (2), insert them into the gears of the gear A (4) and the rack gear assembly (7), and fix them with the washer (1).

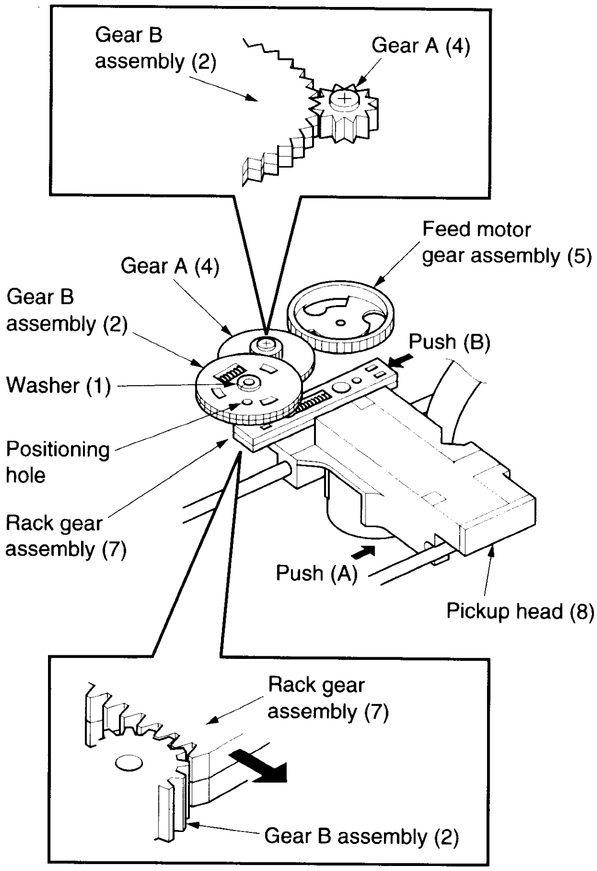

Gear B assembly (2)
Gear A (4)
Feed motor gear assembly (5)
Gear A (4)
Gear B assembly (2)
Push (B)
Washer (1)
Positioning hole
Rack gear assembly (7)
Push (A)
Pickup head (8)
Rack gear assembly (7)
Gear B assembly (2)

Fig. 2-1-25

Notes:

- Push the feed motor gear assembly (5) to fit it in position.
- Fit the feed motor gear assembly (5) at the height where the clearance is 0.5 ± 0.1 mm between the feed motor gear assembly (5) and the hall element on the feed motor PC board.
- When replacing the hall element, be sure to fit the hall element to the pattern surface of the feed motor PC board.

  Then, solder the hall element on the feed motor PC board without leaving any clearance.

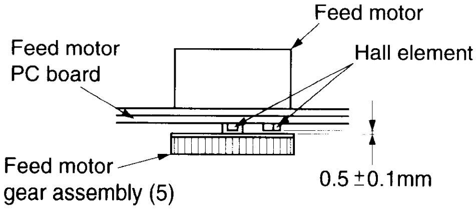

Feed motor
Feed motor PC board
Hall element
Feed motor gear assembly (5)
0.5 ±0.1mm

Fig. 2-1-26

1-3-5. Feed Motor

<Removal>

1. Remove the gear B assembly, the gear A and the feed motor gear assembly (Refer to item 1-3-4).
2. Remove two screws (1), and remove the feed motor (2). (Refer to Fig. 2-1-27.)
3. Desolder the feed motor lead wire (3) from the feed motor PC board (4).

<Mounting>

1. Solder the feed motor lead wire (3) of a new feed motor (2) to the feed motor PC board (4).
   (Pay attention to the lead wire color.)
2. Fix the feed motor (2) with two screws (1) with attention paid to the motor angle. (The motor side end of the feed motor lead wire (3) is to be aligned to the positioning concave on the pickup mechanism assembly.)
3. Fix the feed motor lead wire (3) with a cotton tape. Use a new cotton tape.

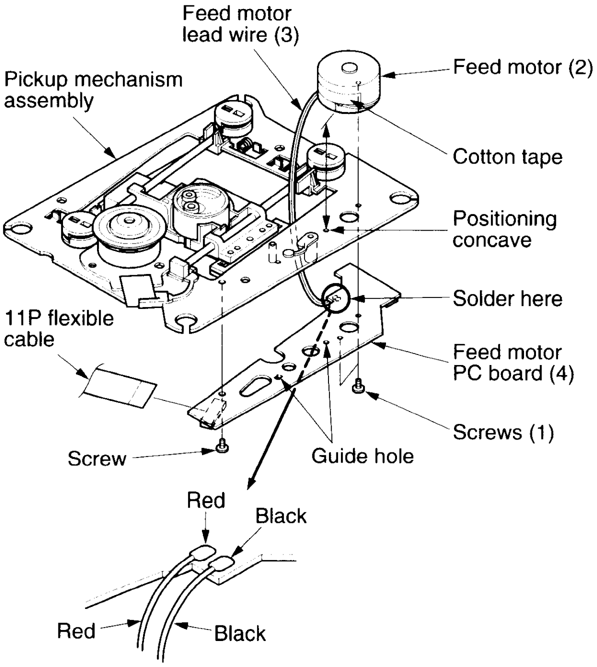

Feed motor lead wire (3)
Pickup mechanism assembly
Feed motor (2)
Cotton tape
Positioning concave
Solder here
11P flexible cable
Feed motor PC board (4)
Screws (1)
Screw
Guide hole
Red
Black
Red
Black

Fig. 2-1-27

SECTION 4
PARTS LIST

SAFETY PRECAUTION

The parts identified by ⚠ mark are critical for safety. Replace only with part number specified.

The mounting position of replacement is to be identical with originals.

The substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire or other hazards.

NOTICE

The part number must be used when ordering parts in order to assist in processing, be sure to include the model number and description.

Parts marked # are of chip type and mounted on original PC boards.

However, when they are placed for servicing works, use discrete parts listed on the parts list.

ABBREVIATIONS

1. Integrated Circuit (IC)

2. Capacitor (Cap)

- **Capacitance Tolerance (for Nominal Capacitance more than 10pF)**

Table 4-2-1

Symbol	B	C	D	F	G	J	K	M	N
Tolerance %	± 0.1	± 0.25	± 0.5	± 1	± 2	± 5	± 10	± 20	± 30

Symbol	P	Q	T	U	V	W	X	Y	Z
Tolerance %	+ 100 0	+ 30 - 10	+ 50 - 10	+ 75 - 10	+ 20 - 10	+ 100 - 10	+ 40 - 20	+ 150 - 10	+ 80 - 20

Ex. 10μF J = 10μF ± 5%

- **Capacitance Tolerance (for Nominal Capacitance 10pF or less)**

Table 4-2-2

Symbol	B	C	D	F	G
Tolerance pF	± 0.1	± 0.25	± 0.5	± 1	± 2

Ex. 10pF G = 10pF ± 2pF

3. Resistor (Res)

- **Resistance tolerance**

Table 4-3-1

Symbol	B	C	D	F	G	J	K	M
Tolerance %	± 0.1	± 0.25	± 0.5	± 1	± 2	± 5	± 10	± 20

Ex. 470ΩJ = 470Ω± 5%

4. EXPLODED VIEWS

4-1. Packing Assembly

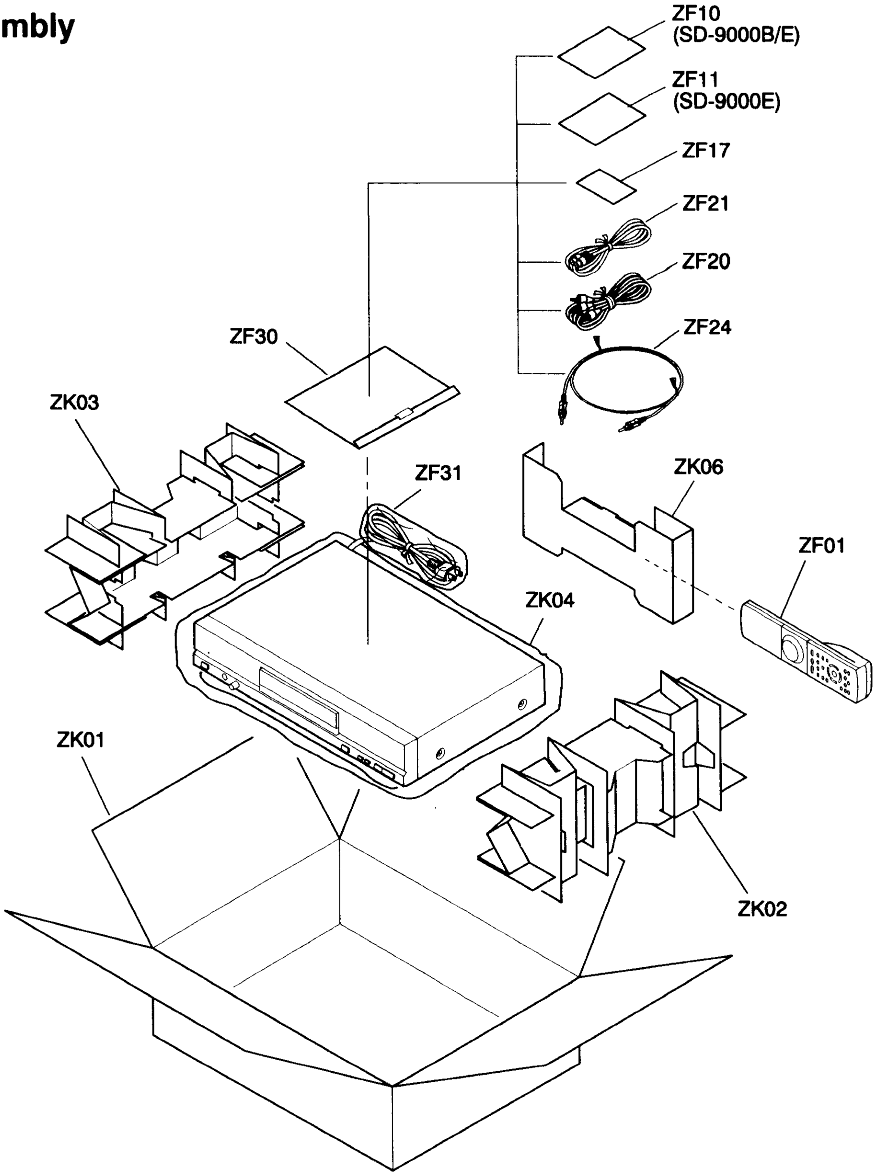

ZF10
(SD-9000B/E)
ZF11
(SD-9000E)
ZF17
ZF21
ZF20
ZF24
ZF30
ZK03
ZF31
ZK06
ZF01
ZK04
ZK01
ZK02

Fig. 4-4-1

4-2. Remote Control Unit

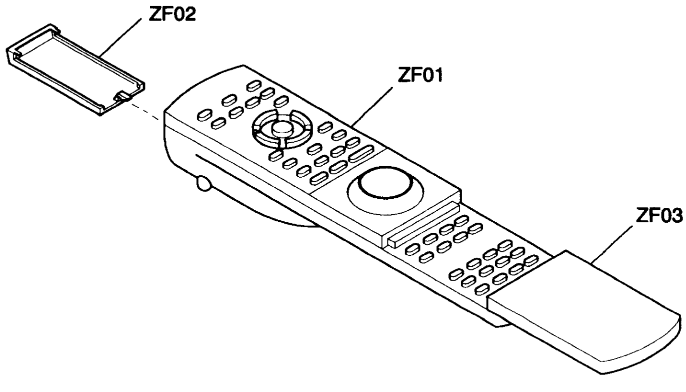

ZF02
ZF01
ZF03

Fig. 4-4-2

4-3. Chassis Assembly

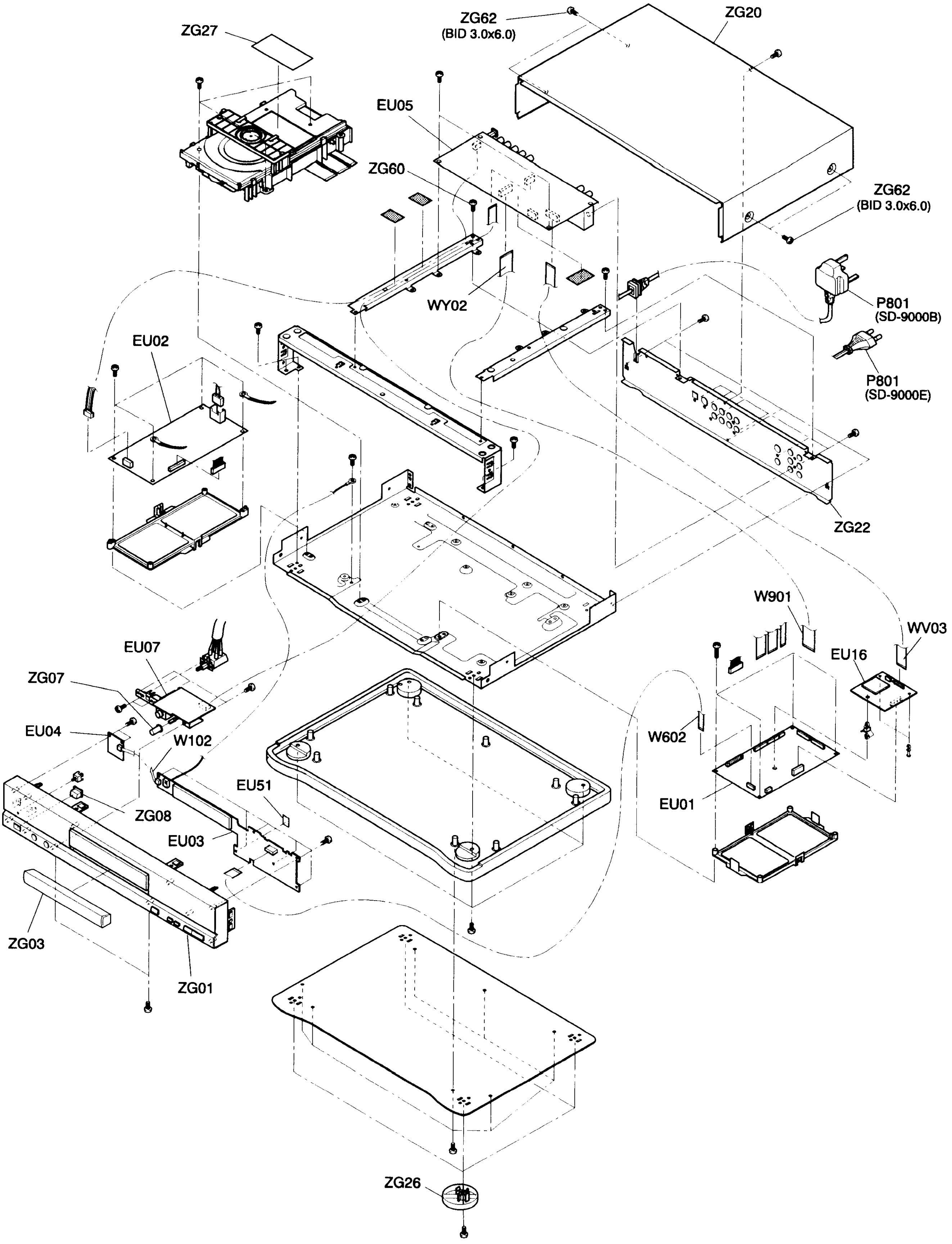

ZG27
ZG62
(BID 3.0x6.0)
ZG20
EU05
ZG60
ZG62
(BID 3.0x6.0)
P801
(SD-9000B)
WY02
EU02
P801
(SD-9000E)
ZG22
W901
WV03
EU07
EU16
ZG07
EU04
W102
W602
EU51
EU01
ZG08
EU03
ZG03
ZG01
ZG26

Fig. 4-4-3

4-4. Mechanism Assembly

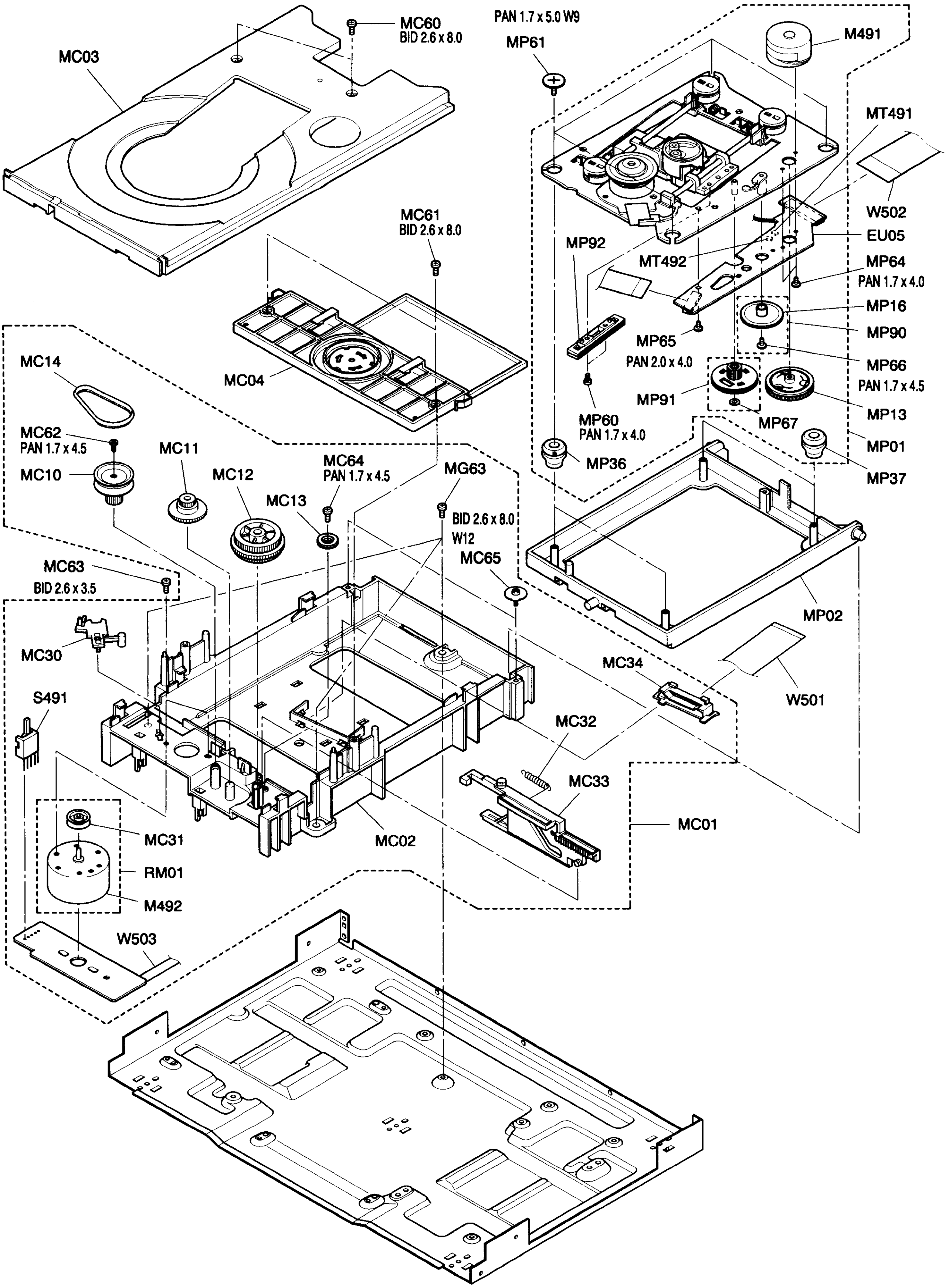

MC60
BID 2.6 x 8.0
PAN 1.7 x 5.0 W9
MP61
M491
MC03
MT491
W502
EU05
MC61
BID 2.6 x 8.0
MP92
MT492
MP64
PAN 1.7 x 4.0
MP16
MP90
MP65
PAN 2.0 x 4.0
MP66
PAN 1.7 x 4.5
MC14
MC04
MP91
MP13
MP60
PAN 1.7 x 4.0
MP67
MC62
PAN 1.7 x 4.5
MP01
MC11
MC64
PAN 1.7 x 4.5
MP36
MP37
MC10
MC12
MG63
MC13
BID 2.6 x 8.0
W12
MC65
MC63
BID 2.6 x 3.5
MP02
MC30
MC34
W501
S491
MC32
MC33
MC31
MC02
MC01
RM01
M492
W503

Fig. 4-4-4

5. PARTS LIST

- MECHANICAL PARTS -

LOCATION NUMBER	PART NUMBER	DESCRIPTION	
M491	79070015	Motor, Feed	RF-300PA
MC01	79070158	Chassis Assy, Mechanism	
MC03	79070022	Tray	
MC04	79070139	Clamper Assy	
MC14	79070024	Belt, Loading	
MC63	79070028	Screw	2.6x3.5mm
MC65	79070064	Screw	2.6x8W12mm
MP01	79070339	Mechanism Assy	Pick Up
MP02	79070023	Chassis, Sub	
MP13	79070011	Gear Assy	Feed Motor
MP36	79070016	Dumper, Rubber	Front
MP37	79070082	Dumper, Rubber	Rear
MP61	79070019	Screw	1.7x0.5W9mm
MP64	79070020	Screw	1.7x4.0mm
MP66	79070018	Screw	1.7x4.5mm
MP67	79070017	Washer	W-5-1.65
MP90	79070012	Gear A Kit	
MP91	79070013	Gear B Kit	
MP92	79070014	Gear, Rack	
MT491	79040001	Hole Element	HW-101A-E
MT492	79040001	Hole Element	HW-101A-E
RM01	79070025	Motor Assy, Loading	
S491	79070026	Switch	SW-SSCF
W102	79080145	Cable, Flexible	FFC, 4P, L120
W501	79080020	Cable, Flexible	FFC, 21P, L292
W502	79080021	Cable, Flexible	FFC, 19P, L185
W503	79080059	Cable, Flexible	FFC, 5P, L288
W602	79080142	Cable, Flexible	FFC-10P-L150
W901	79080178	Cable, Flexible	FFC-25P-L180
WV03	79080177	Cable, Flexible	FFC-17P-L120
WY02	79080183	Cable, Flexible	FFC, 10P, L440
ZF01	79078015	Remote Control Unit	
ZF02	79078002	Cover, Battery	
ZF03	79078003	Cover, Remote Control Unit	
⚠ZF10	79077032	Owners Manual, English	
⚠ZF11	79077033	Owners Manual, English/German, SD-9000E	
ZF17	79078018	Warranty Card	
ZF20	79070037	Cable, AV	
ZF21	79070049	Cable, S	
ZF24	79070344	Cable, Optical	
ZF30	79070042	Bag, Polyethylene	
ZF31	79080026	Bag, Polyethylene	Power Cord, SD-9000E
ZF31	79070255	Bag, Polyethylene	Power Cord, SD-9000B
ZG01	79071061	Front Panel	
ZG03	79071054	Panel, Tray	
ZG07	79071055	Knob, HP VR	
ZG08	79071056	Button, Power	
ZG20	79073032	Cover, Top	
ZG26	79073033	Foot Assy, Front	
⚠ZG27	79070358	Label, PU Caution	
ZG62	79070188	Screw	3.0x6.0
ZK01	79075036	Case	
ZK02	79075024	Packing, R	
ZK03	79075023	Packing, L	
ZK04	79070033	Bag, Polyethylene	
ZK06	79075025	Separator	
ZZ01	79070274	Test Disc	DVDZ-9044
	79080074	Kit, Data Update	

LOCATION NUMBER	PART NUMBER	DESCRIPTION

LOCATION NUMBER	PART NUMBER	DESCRIPTION		
		- ELECTRICAL PARTS -		
■⚠EU02	79085011	PC Board Assy	Power	
		- INTEGRATED CIRCUITS -		
⚠Q803	79040100	IC	STR-F6535	
Q821	79040104	IC	UPC1093J	
Q830	79040105	IC	BA10324A	
		- TRANSISTORS -		
⚠Q802	79050026	Photo Coupler	PC123FY2	
⚠Q804	79050026	Photo Coupler	PC123FY2	
Q822	79050007	Transistor	2SC3852	
Q823	79050007	Transistor	2SC3852	
Q824	79050034	Transistor	2SA1757F	
Q825	79050005	Transistor	2SC2236-Y	
Q827	79050004	Transistor	2SC2458-Y	
Q828	79050004	Transistor	2SC2458-Y	
Q829	79050008	Transistor	RN1201	
		- DIODES -		
⚠D802	79060016	Diode	ERA15-06	
⚠D803	79060016	Diode	ERA15-06	
⚠D804	79060016	Diode	ERA15-06	
⚠D805	79060016	Diode	ERA15-06	
⚠D806	79060009	Diode	RU-1P	
D807	79060013	Diode	AG01	
D808	79060015	Diode	1SS133	
D809	79060029	Diode, Zener	6.8V	
D810	79060013	Diode	AG01	
D811	79060013	Diode	AG01	
D812	79060015	Diode	1SS133	
D821	79060008	Diode	RU2YX	
D822	79060017	Diode	RU4Z	
D823	79060032	Diode	RK49LF-L1	
D824	79060013	Diode	AG01	
D825	79060013	Diode	AG01	
D829	79060015	Diode	1SS133	
D831	79060015	Diode	1SS133	
D832	79060015	Diode	1SS133	
D833	79060015	Diode	1SS133	
D835	79060012	Diode	ERA15-02	
D836	79060007	Diode, Zener	UZ3.0BSB	
D837	79060004	Diode, Zener	UZ5.1BSB	
D838	79060004	Diode, Zener	UZ5.1BSB	
D839	79060004	Diode, Zener	UZ5.1BSB	
D840	79060006	Diode, Zener	UZ5.6BSB	
D841	79060013	Diode	AG01	
D842	79060013	Diode	AG01	
D843	79060027	Diode, Zener	UZ12BSB	
		- COILS -		
⚠L801	79070051	Coil, Choke	ZBF253D-02	
⚠L802	79070051	Coil, Choke	ZBF253D-02	
⚠L821	79010001	Coil	20μH	
		- CAPACITORS -		
⚠C801	79020027	Cap, Plastic	0.22μF	Z 275V
⚠C802	79020028	Cap, Ceramic	470pF	Z 250V
⚠C803	79020028	Cap, Ceramic	470pF	Z 250V
⚠C804	79020013	Cap, Ceramic	0.01μF	Z 250V
⚠C805	79020042	Cap, Electrolytic	100μF	D 450V
⚠C806	79020016	Cap, Plastic	0.033μF	J 630V
⚠C808	79020015	Cap, Ceramic	150pF	J 1kV
C809	79020067	Cap, Electrolytic	27μF	M 35V
C810	79020078	Cap, Ceramic	470pF	K 50V
⚠C811	79020029	Cap, Ceramic	220pF	Z 250V
C812	79020068	Cap, Ceramic	390pF	K 2kV
C813	79020079	Cap, Ceramic	2200pF	K 50V
C814	79020069	Cap, Ceramic	0.1μF	J 50V
C821	79020020	Cap, Electrolytic	820μF	M 16V
C823	79020019	Cap, Electrolytic	1200μF	M 10V
C825	79020082	Cap, Electrolytic	1500μF	M 10V
C826	79020002	Cap, Electrolytic	22μF	M 100V
C828	79020077	Cap, Electrolytic	220μF	M 25V
C829	79020022	Cap, Electrolytic	220μF	M 10V
C830	79020001	Cap, Electrolytic	22μF	M 16V
C831	79020043	Cap, Electrolytic	470μF	M 16V

LOCATION NUMBER	PART NUMBER	DESCRIPTION		
C832	79020035	Cap, Electrolytic	100μF	M 10V
C833	79020043	Cap, Electrolytic	470μF	M 16V
C834	79020043	Cap, Electrolytic	470μF	M 16V
C835	79020007	Cap, Electrolytic	22μF	M 50V
C836	79020007	Cap, Electrolytic	22μF	M 50V
C837	79020021	Cap, Plastic	0.22μF	J 50V
C840	79020064	Cap, Electrolytic	39μF	M 50V
C841	79020064	Cap, Electrolytic	39μF	M 50V
C842	79020007	Cap, Electrolytic	22μF	M 50V
		- RESISTORS -		
R803	79030045	Res, Oxide Metal	56kΩ	J 2W
⚠R804	79030025	Res, Oxide Metal	82kΩ	J 2W
R805	79030039	Res, Carbon	4.7kΩ	J 1/6W
R806	79030026	Res, Oxide Metal	330kΩ	J 1W
R807	79030032	Res, Carbon	680Ω	J 1/6W
⚠R808	79030011	Res, Oxide Metal	0.47Ω	J 1W
R809	79030033	Res, Carbon	3.3kΩ	J 1/6W
⚠R810	79030028	Res, Oxide Metal	22Ω	J 1/2W
R811	79030034	Res, Carbon	2.4kΩ	J 1/6W
R812	79030035	Res, Carbon	2.7kΩ	J 1/6W
R824	79030046	Res, Oxide Metal	62Ω	J 1/2W
R825	79030036	Res, Carbon	330Ω	J 1/6W
R826	79030037	Res, Carbon	7.5kΩ	G 1/4W
R827	79030038	Res, Carbon	1kΩ	G 1/4W
R828	79030039	Res, Carbon	4.7kΩ	J 1/6W
R829	79030004	Res, Carbon	1kΩ	J 1/6W
R830	79030029	Res, Carbon	100kΩ	G 1/4W
R832	79030004	Res, Carbon	1kΩ	J 1/6W
R833	79030047	Res, Oxide Metal	910Ω	J 1/2W
R834	79030041	Res, Carbon	2kΩ	G 1/4W
R835	79030041	Res, Carbon	2kΩ	G 1/4W
R836	79030041	Res, Carbon	2kΩ	G 1/4W
R837	79030041	Res, Carbon	2kΩ	G 1/4W
R838	79030042	Res, Carbon	680Ω	G 1/4W
R839	79030041	Res, Carbon	2kΩ	G 1/4W
R840	79030002	Res, Carbon	10kΩ	J 1/6W
R841	79030043	Res, Carbon	180Ω	J 1/6W
R842	79030042	Res, Carbon	680Ω	G 1/4W
R843	79030030	Positive Thermister	PTH8L510-T	
R845	79030044	Res, Carbon	2.7kΩ	G 1/4W
R846	79030039	Res, Carbon	4.7kΩ	J 1/6W
R847	79030035	Res, Carbon	2.7kΩ	J 1/6W
R848	79030004	Res, Carbon	1kΩ	J 1/6W
R849	79030043	Res, Carbon	180Ω	J 1/6W
R850	79030009	Res, Oxide Metal	220Ω	J 1/2W
		- MISCELLANEOUS -		
⚠F801	79087001	Fuse	1.6A, 250V	
⚠F822	79070061	Protector	125V, 3.0A	
⚠F823	79070061	Protector	125V, 3.0A	
⚠P801	79080150	Power Cord	SD-9000E	
⚠P801	79088008	Power Cord	SD-9000B	
⚠RF823	79030017	Res, Fusible	560Ω	J 1/2W
⚠T801	79080006	Line Filter	253YOR7	
⚠T802	79010013	Power Transformer	SRW3020ED-204	
■EU04	79081021	PC Board Assy	Power Switch	
■EU03	79081010	PC Board Assy	Front	
		- INTEGRATED CIRCUITS -		
IC101	79040132	IC	TMP47C416F-RE12	
		- MISCELLANEOUS -		
A101	79080148	Display, FL	7-ST-33GK	
MT101	79080140	Module, RMT	GP1U261X	
S101	79080141	Switch	Push	
S102	79080141	Switch	Push	
S103	79080141	Switch	Push	
S104	79080141	Switch	Push	
S105	79080141	Switch	Push	
X101	79070006	Oscillator, Ceramic	8MHz	
■EU07	79081012	PC Board Assy	HP AMP	
		- INTEGRATED CIRCUITS -		
ICU01	79040044	IC	NJM4580E	
		- TRANSISTORS -		
QU01	79050029	Transistor, Chip	IMD3A	

LOCATION NUMBER	PART NUMBER	DESCRIPTION		
QU03	79050038	Transistor, Chip	2SD2114K	
QU31	79050001	Transistor, Chip	RN2402	
QU32	79050001	Transistor, Chip	RN2402	
QU33	79050001	Transistor, Chip	RN2402	
QU34	79050038	Transistor, Chip	2SD2114K	
QU35	79050038	Transistor, Chip	2SD2114K	
		- CAPACITORS -		
CU01	79020093	Cap, Electrolytic	220µF	M 10V
CU02	79020094	Cap, Electrolytic	0.0001µF	M 6.3V
CU03	79020094	Cap, Electrolytic	0.0001µF	M 6.3V
CU04	79020093	Cap, Electrolytic	220µF	M 10V
CU07	79020092	Cap, Electrolytic	10µF	M 16V
CU08	79020092	Cap, Electrolytic	10µF	M 16V
CU11	79020092	Cap, Electrolytic	10µF	M 16V
CU32	79020093	Cap, Electrolytic	220µF	M 10V
		- MISCELLANEOUS -		
JU01	79089009	Jack, HP		
VRU01	79030049	Res, Variable		
■EU01	79083020	PC Board Assy	Main	
		- INTEGRATED CIRCUITS -		
IC201	79040110	IC	TC90A41AF	
IC202	79040061	IC	UPD424800LE70	
IC202	79040145	IC	NN514800AJ-60T	
IC203	79040066	IC	UPC29L33T	
IC204	79040008	IC	TC7S32F	
IC205	79040008	IC	TC7S32F	
IC301	79040122	IC	MD36710X	
IC302	79040063	IC	HY57V16160ATC-10	
IC305	79040063	IC	HY57V16160ATC-10	
IC307	79040130	IC	NJU6321PE-TE1	
IC308	79040011	IC	TC7W04F	
IC309	79040123	IC	TC203G8AF-0101(Z)	
IC310	79040128	IC	MSM51V8221A	
IC311	79040013	IC	TC7W74F	
IC312	79040119	IC	TC7SH86F	
IC313	79040119	IC	TC7SH86F	
IC314	79040119	IC	TC7SH86F	
IC501	79040114	IC	TA1254AF	
IC503	79040109	IC	TC9461F	
IC504	79040006	IC	TC7S04F	
IC505	79040136	IC	BA5917FP-E2	
IC506	79040029	IC	TC74HC4053AF	
IC507	79040039	IC	NJM3403AMC	
IC508	79040072	IC	TC7S66F	
IC509	79040129	IC	RT2124AFS-T	
IC510	79040040	IC	BA6844FP	
IC512	79040106	IC	TC7SU04F	
IC516	79040006	IC	TC7S04F	
IC517	79040014	IC	TA75S01F	
IC518	79040050	IC	NJM2107F	
IC519	79040009	IC	TC7S86F	
IC520	79040008	IC	TC7S32F	
IC521	79040009	IC	TC7S86F	
IC522	79040011	IC	TC7W04F	
IC523	79040013	IC	TC7W74F	
IC524	79040013	IC	TC7W74F	
IC525	79040121	IC	AD8561AR	
IC526	79040050	IC	NJM2107F	
IC527	79040131	IC	TC74HC4066AFT	
IC528	79040126	IC	BU6481KV	
IC529	79040125	IC	TC7W66FU	
IC530	79040072	IC	TC7S66F	
IC601	79040143	IC	TMP93CS42AF-9417	
IC602	79040041	IC	PST591-IDT	
IC603	79040027	IC	TC74HC32AF	
IC604	79040030	IC	TC74AC573F	
IC605	79040124	IC	TC74HC08AF	
IC607	79040007	IC	TC7S08F	
IC608	79040006	IC	TC7S04F	
IC609	79040030	IC	TC74AC573F	
IC613	79040135	IC	24C04AFJA	
IC614	79040144	IC	W26010AT-15	
IC615	79040127	IC	LH28F800SGE-70	
IC616	79040007	IC	TC7S08F	
IC617	79040087	IC	TC7W241FU	
IC902	79040066	IC	UPC29L33T	
IC904	79040108	IC	TC7SET08F	
IC906	79040087	IC	TC7W241FU	
IC907	79040087	IC	TC7W241FU	
		- TRANSISTORS -		
Q501	79050019	Transistor, Chip	2SA1182	
Q502	79050010	Transistor, Chip	RN1411	
Q503	79050015	Transistor, Chip	HN1B01F	
Q504	79050032	Transistor, Chip	IMX1	
Q505	79050030	Transistor, Chip	DTC143EKA	
Q506	79050015	Transistor, Chip	HN1B01F	
Q507	79050037	Transistor, Chip	2SC4944-GR	
Q508	79050036	Transistor, Chip	2SA1832-GR	
Q511	79050010	Transistor, Chip	RN1411	
Q512	79050010	Transistor, Chip	RN1411	
Q601	79050031	Transistor, Chip	DTA114EKA	
		- DIODES -		
D501	79060018	Diode, Chip	1SS193	
D502	79060018	Diode, Chip	1SS193	
D503	79060018	Diode, Chip	1SS193	
		- MISCELLANEOUS -		
X301	79089003	Oscillator	SMD49, 27MHz	
X501	79080014	Oscillator	SMD49, 33.86MHz	
X601	79080015	Oscillator	CSACV20.00MX040	
■EU16	79086005	PC Board Assy	Sub Video	
		- INTEGRATED CIRCUITS -		
ICV06	79040139	IC	ADV7172	
		- CAPACITORS -		
CV22	79020061	Cap, Electrolytic	100µF	M 6.3V
■EU05	79085021	PC Board Assy	Output	
		- INTEGRATED CIRCUITS -		
ICY01	79040101	IC	AD1855JRS	
ICY02	79040102	IC	NJM2370U05	
ICY03	79040044	IC	NJM4580E	
ICY04	79040044	IC	NJM4580E	
ICY07	79040007	IC	TC7S08F	
ICY08	79040008	IC	TC7S32F	
ICY09	79040074	IC	TC74HCU04AF	
ICY10	79080019	Terminal, Optical	GP1F32T	
ICY11	79040130	IC	NJU6321PE-TE1	
ICY15	79040087	IC	TC7W241FU	
ICY17	79040087	IC	TC7W241FU	
ICY18	79040007	IC	TC7S08F	
ICY19	79040008	IC	TC7S32F	
ICY20	79040101	IC	AD1855JRS	
ICY21	79040044	IC	NJM4580E	
ICY22	79040087	IC	TC7W241FU	
ICY23	79040007	IC	TC7S08F	
ICY24	79040008	IC	TC7S32F	
ICY25	79040101	IC	AD1855JRS	
ICY26	79040044	IC	NJM4580E	
ICY27	79040013	IC	TC7W74F	
ICY28	79040102	IC	NJM2370U05	
ICY29	79040072	IC	TC7S66F	
ICY30	79040072	IC	TC7S66F	
ICY31	79040007	IC	TC7S08F	
ICY32	79040007	IC	TC7S08F	
ICY33	79040087	IC	TC7W241FU	
		- TRANSISTORS -		
QX01	79050022	Transistor, Chip	HN1A01F-Y	
QX02	79050022	Transistor, Chip	HN1A01F-Y	
QX03	79050022	Transistor, Chip	HN1A01F-Y	
QX04	79050022	Transistor, Chip	HN1A01F-Y	
QX05	79050022	Transistor, Chip	HN1A01F-Y	
QX08	79050015	Transistor, Chip	HN1B01F	
QX10	79050015	Transistor, Chip	HN1B01F	
QX12	79050015	Transistor, Chip	HN1B01F	
QX16	79050015	Transistor, Chip	HN1B01F	
QX18	79050015	Transistor, Chip	HN1B01F	
QX20	79050015	Transistor, Chip	HN1B01F	
QX22	79050032	Transistor, Chip	IMX1	
QX23	79050030	Transistor, Chip	DTC143EKA	

LOCATION NUMBER	PART NUMBER	DESCRIPTION		
QY01	79050012	Transistor, Chip	RN4601	
QY02	79050014	Transistor, Chip	HN1C03F	
QY03	79050014	Transistor, Chip	HN1C03F	
QY05	79050030	Transistor, Chip	DTC143EKA	
QY06	79050014	Transistor, Chip	HN1C03F	
QY07	79050014	Transistor, Chip	HN1C03F	
QY08	79050014	Transistor, Chip	HN1C03F	
QY09	79050012	Transistor, Chip	RN4601	
QY10	79050014	Transistor, Chip	HN1C03F	
QY11	79050014	Transistor, Chip	HN1C03F	
QY12	79050012	Transistor, Chip	RN4601	
QY13	79050014	Transistor, Chip	HN1C03F	
QY14	79050030	Transistor, Chip	DTC143EKA	
QY15	79050001	Transistor, Chip	RN2402	
QY16	79050001	Transistor, Chip	RN2402	
QY17	79050001	Transistor, Chip	RN2402	
QY18	79050012	Transistor, Chip	RN4601	
QY19	79050001	Transistor, Chip	RN2402	
QY20	79050001	Transistor, Chip	RN2402	
QY21	79050001	Transistor, Chip	RN2402	
QY22	79050001	Transistor, Chip	RN2402	
QY23	79050001	Transistor, Chip	RN2402	
QY24	79050001	Transistor, Chip	RN2402	
QY25	79050001	Transistor, Chip	RN2402	
QY26	79050001	Transistor, Chip	RN2402	
QY27	79050001	Transistor, Chip	RN2402	
QY28	79050014	Transistor, Chip	HN1C03F	
QY29	79050014	Transistor, Chip	HN1C03F	
QY30	79050014	Transistor, Chip	HN1C03F	
		- DIODES -		
DY01	79060022	Diode, Chip	1SS368	
DY02	79060022	Diode, Chip	1SS368	
DY03	79060026	Diode	UDZS10B	
DY04	79060022	Diode, Chip	1SS368	
DY05	79060022	Diode, Chip	1SS368	
		- CAPACITORS -		
CW05	79020083	Cap, Electrolytic	10μF	M 50V
CW06	79020083	Cap, Electrolytic	10μF	M 50V
CW09	79020095	Cap, Electrolytic	1000μF	M 25V
CW10	79020086	Cap, Electrolytic	220μF	M 16V
CW11	79020086	Cap, Electrolytic	220μF	M 16V
CW12	79020086	Cap, Electrolytic	220μF	M 16V
CW13	79020086	Cap, Electrolytic	220μF	M 16V
CX01	79020039	Cap, Electrolytic	47μF	M 10V
CX17	79020088	Cap, Electrolytic	1000μF	M 10V
CX20	79020088	Cap, Electrolytic	1000μF	M 10V
CX21	79020088	Cap, Electrolytic	1000μF	M 10V
CX22	79020033	Cap, Electrolytic	470μF	M 6.3V
CX23	79020033	Cap, Electrolytic	470μF	M 6.3V
CY02	79020083	Cap, Electrolytic	10μF	M 50V
CY03	79020083	Cap, Electrolytic	10μF	M 50V
CY05	79020083	Cap, Electrolytic	10μF	M 50V
CY07	79020085	Cap, Electrolytic	100μF	M 10V
CY10	79020086	Cap, Electrolytic	220μF	M 16V
CY11	79020086	Cap, Electrolytic	220μF	M 16V
CY12	79020086	Cap, Electrolytic	220μF	M 16V
CY13	79020086	Cap, Electrolytic	220μF	M 16V
CY14	79020090	Cap, Plastic	1000pF	J 100V
CY15	79020090	Cap, Plastic	1000pF	J 100V
CY16	79020089	Cap, Plastic	220pF	J 100V
CY17	79020086	Cap, Electrolytic	220μF	M 16V
CY18	79020090	Cap, Plastic	1000pF	J 100V
CY19	79020090	Cap, Plastic	1000pF	J 100V
CY20	79020089	Cap, Plastic	220pF	J 100V
CY21	79020086	Cap, Electrolytic	220μF	M 16V
CY22	79020089	Cap, Plastic	220pF	J 100V
CY23	79020089	Cap, Plastic	220pF	J 100V
CY25	79020085	Cap, Electrolytic	100μF	M 10V
CY26	79020085	Cap, Electrolytic	100μF	M 10V
CY29	79020084	Cap, Electrolytic	47μF	M 25V
CY42	79020085	Cap, Electrolytic	100μF	M 10V
CY43	79020085	Cap, Electrolytic	100μF	M 10V
CY49	79020085	Cap, Electrolytic	100μF	M 10V
CY50	79020083	Cap, Electrolytic	10μF	M 50V
CY52	79020086	Cap, Electrolytic	220μF	M 16V

LOCATION NUMBER	PART NUMBER	DESCRIPTION		
CY53	79020086	Cap, Electrolytic	220μF	M 16V
CY54	79020086	Cap, Electrolytic	220μF	M 16V
CY55	79020086	Cap, Electrolytic	220μF	M 16V
CY56	79020090	Cap, Plastic	1000pF	J 100V
CY57	79020090	Cap, Plastic	1000pF	J 100V
CY58	79020089	Cap, Plastic	220pF	J 100V
CY59	79020090	Cap, Plastic	1000pF	J 100V
CY60	79020090	Cap, Plastic	1000pF	J 100V
CY61	79020089	Cap, Plastic	220pF	J 100V
CY62	79020089	Cap, Plastic	220pF	J 100V
CY63	79020089	Cap, Plastic	220pF	J 100V
CY64	79020085	Cap, Electrolytic	100μF	M 10V
CY65	79020085	Cap, Electrolytic	100μF	M 10V
CY66	79020086	Cap, Electrolytic	220μF	M 16V
CY67	79020086	Cap, Electrolytic	220μF	M 16V
CY72	79020083	Cap, Electrolytic	10μF	M 50V
CY75	79020085	Cap, Electrolytic	100μF	M 10V
CY76	79020086	Cap, Electrolytic	220μF	M 16V
CY77	79020086	Cap, Electrolytic	220μF	M 16V
CY78	79020086	Cap, Electrolytic	220μF	M 16V
CY79	79020086	Cap, Electrolytic	220μF	M 16V
CY80	79020090	Cap, Plastic	1000pF	J 100V
CY81	79020090	Cap, Plastic	1000pF	J 100V
CY82	79020089	Cap, Plastic	220pF	J 100V
CY83	79020090	Cap, Plastic	1000pF	J 100V
CY84	79020090	Cap, Plastic	1000pF	J 100V
CY85	79020089	Cap, Plastic	220pF	J 100V
CY86	79020086	Cap, Electrolytic	220μF	M 16V
CY87	79020086	Cap, Electrolytic	220μF	M 16V
CY88	79020089	Cap, Plastic	220pF	J 100V
CY89	79020089	Cap, Plastic	220pF	J 100V
CY90	79020085	Cap, Electrolytic	100μF	M 10V
CY91	79020085	Cap, Electrolytic	100μF	M 10V
CY92	79020091	Cap, Plastic	4700pF	J 63V
CY93	79020091	Cap, Plastic	4700pF	J 63V
CY94	79020091	Cap, Plastic	4700pF	J 63V
CY95	79020091	Cap, Plastic	4700pF	J 63V
CY96	79020091	Cap, Plastic	4700pF	J 63V
CY97	79020091	Cap, Plastic	4700pF	J 63V
CY98	79020091	Cap, Plastic	4700pF	J 63V
CY99	79020091	Cap, Plastic	4700pF	J 63V
		- MISCELLANEOUS -		
FLX01	79010008	Coil	TH286LAIS15674	
FLX02	79010008	Coil	TH286LAIS15674	
FLX03	79010008	Coil	TH286LAIS15674	
FLX04	79010008	Coil	TH286LAIS15674	
FLX05	79010008	Coil	TH286LAIS15674	
JX01	79089004	Plate, Jack	Video	
JX02	79089005	Plate, Jack	Color Def	
JY01	79089006	Plate, Jack	Audio	
JY02	79089007	Plate, Jack	Digital Audio	
SY01	79080018	Relay	EG2-9	
XY02	79089008	Crystal	HC49/U24.576MHz	

SPECIFICATIONS

DVD Video Player/Outputs/Supplied Accessories

[DVD Video Player]

Power supply	100-240V AC, 50/60 Hz
Power consumption	19W
Mass	7.0 kg
External dimensions	430 x 96 x 300 mm (W/H/D)
Signal system	PAL/3.58 NTSC
Laser	Semiconductor laser, wavelength 650 nm
Frequency range	DVD linear sound : 48kHz sampling 4 Hz to 22 kHz 96kHz sampling 4 Hz to 44 kHz
Signal-to-noise ratio	More than 112 dB
Audio dynamic range	More than 112 dB
Harmonic distortion	Less than 0.001%
Wow and flutter	Below measurable level (less than ± 0.001% (W. PEAK))
Operating conditions	Temperature: 5 °C to 35 °C, Operation status: Horizontal

[Outputs]

Video output	1.0 V (p-p), 75 Ω, negative sync., pin jack x 1
S video output	(Y) 1.0 V (p-p), 75 Ω, negative sync., Mini DIN 4-pin x 1 (C) 0.286 V (p-p), 75 Ω
Color difference output	(Y) 1.0 V (p-p), 75Ω, negative sync., pin jack x 1 (Cb)/(Cr) 0.7 V (p-p), 75 Ω, pin jack x 1
Audio output (optical)	Optical connector x 1
Audio output (coaxial)	0.5 V (p-p), 75 Ω, pin jack x 1
Audio output (mixed out)	2.0 V (rms), 220 Ω, pin jacks (L, R) x 1
Audio output (5.1ch surround)	2.0 V (rms), 220 Ω, pin jacks x 6
Headphone terminal	32 Ω (10 mW), impedance; more than 8 Ω

[Supplied Accessories]

S video cable	1
Audio /video cable	1
Remote control (SE-R0007)	1
Batteries (AA)	2
Optical digital cable	1

* Designs and specifications are subject to change without notice.

SECTION 3

SERVICING DIAGRAMS

1. STANDING PC BOARDS FOR SERVICING

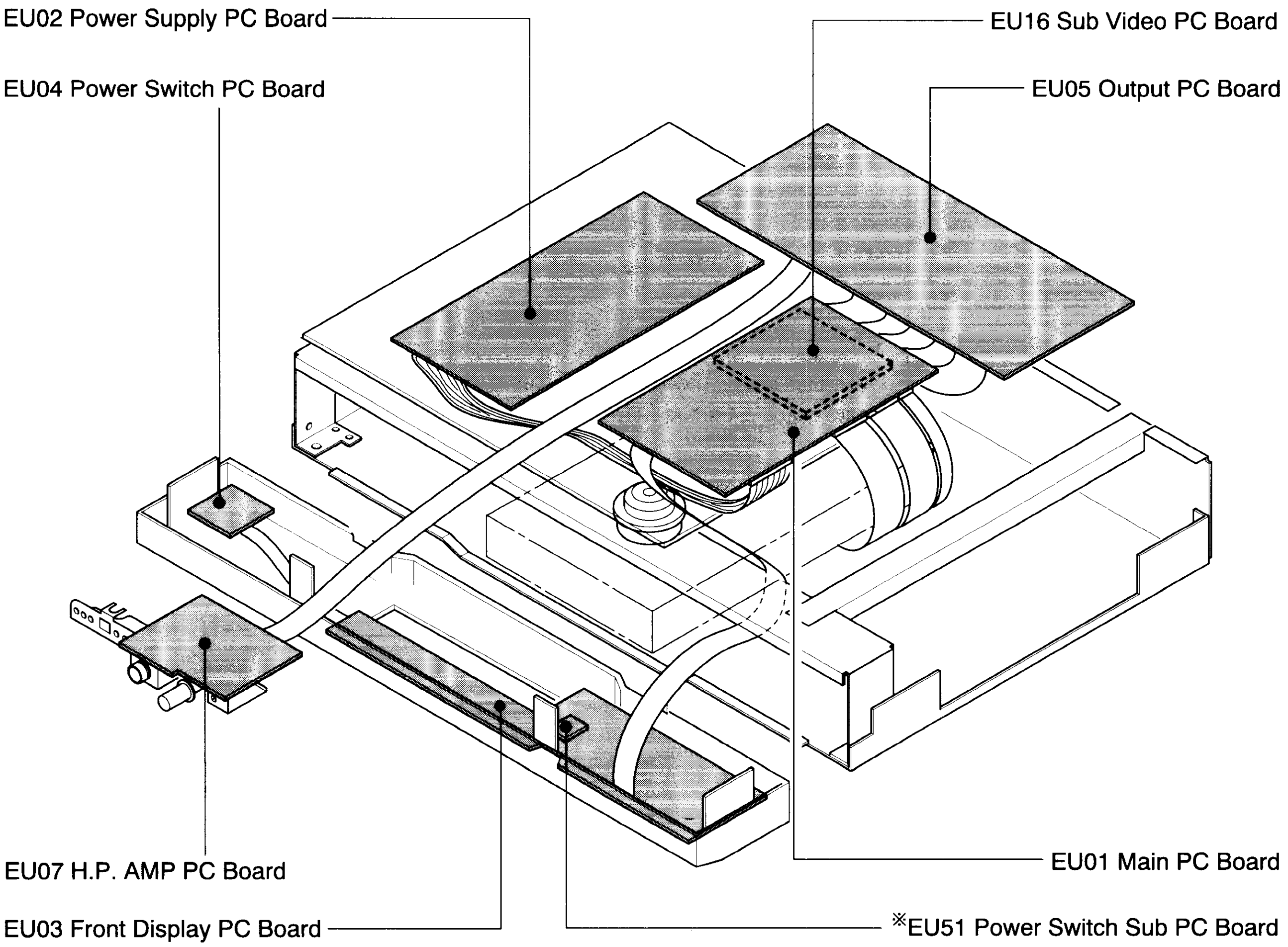

EU02 Power Supply PC Board
EU04 Power Switch PC Board
EU16 Sub Video PC Board
EU05 Output PC Board
EU07 H.P. AMP PC Board
EU03 Front Display PC Board
EU01 Main PC Board
※EU51 Power Switch Sub PC Board

Fig. 3-1-1

* EU51 (Power Switch Sub) PC Board is not required for the unit equipped with a type number of IC 601 (Main CPU) later than 9417 (ex. TMP93CS42AF-9417).

2. CIRCUIT SYMBOLS AND SUPPLEMENTARY EXPLANATION

2-1. Precautions for Part Replacement

- In the schematic diagram, parts marked ⚠ (ex. ⚠ F801) are critical part to meet the safety regulations, so always use the parts bearing specified part codes (SN) when replacing them.
- Using the parts other than those specified shall violate the regulations, and may cause troubles such as operation failures, fire etc.

2-2. Solid Resistor Indication

Unit	None .... Ω K .... kΩ M .... MΩ
Tolerance	None .... ±5% B .... ±0.1% C .... ±0.25% D .... ±0.5% F .... ±1% G .... ±2% K .... ±10% M .... ±20%
Rated Wattage	(1) Chip Parts None .... 1/16W (2) Other Parts None .... 1/6W Other than above, described in the Circuit Diagram.
Type	None .... Carbon film S .... Solid R .... Oxide metal film W .... Metal film W .... Cement FR .... Fusible

Eg. 1

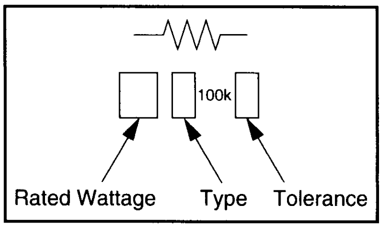
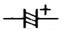
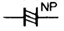
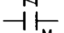
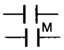
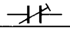

100k
Rated Wattage
Type
Tolerance

FIg. 3-2-1

2-3. Capacitance Indication

Symbol	 .... Electrolytic, Special electrolytic  .... Non polarity electrolytic  .... Ceramic, plastic  .... Film  .... Trimmer
Unit	None .... F μ .... μF p .... pF
Rated voltage	None .... 50V For other than 50V and electrolytic capacitors, described in the Circuit Diagram.
Tolerance	(1) Ceramic, plastic, and film capacitors of which capacitance are more than 10 pF. None .... ±5% or more B .... ±0.1% C .... ±0.25% D .... ±0.5% F .... ±1% G .... ±2% (2) Ceramic, plastic, and film capacitors of which capacitance are 10 pF or less. None .... more than ±5% pF B .... ±0.1 pF C .... ±0.25 pF (3) Electrolytic, Trimmer Tolerance is not described.
Temperature characteristic (Ceramic capacitor)	None .... SL For others, temperature characteristics are described. (For capacitors of 0.01 μF and no indications are described as F.)
Static electricity capacity (Ceramic capacitor)	Sometimes described with abbreviated letters as shown in Eg. 3.

Eg. 2

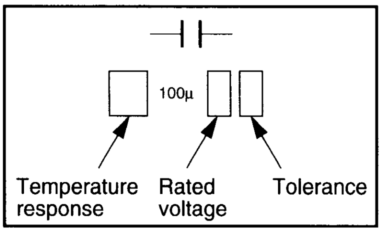

100μ
Temperature response
Rated voltage
Tolerance

Fig. 3-2-2

Eg. 3

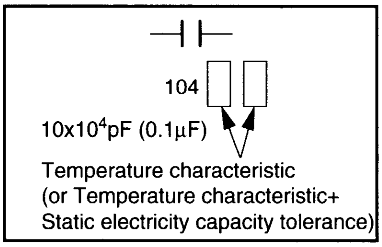

104
10x10^{4}pF (0.1μF)
Temperature characteristic
(or Temperature characteristic+
Static electricity capacity tolerance)

Fig. 3-2-3

2-4. Inductor Indication

Unit	None	H
	µ	µH
	m	mH
Tolerance	None	±5%
	B	±0.1%
	C	±0.25%
	D	±0.5%
	F	±1%
	G	±2%
	K	±10%
	M	±20%

2-5. Waveform and Voltage Measurement

- The waveforms for CD/DVD and RF shown in the circuit diagrams are obtained when a test disc is played back.
- All voltage values except the waveforms are expressed in DC and measured by a digital voltmeter.

2-6. Others

- The parts marked with "NC" or "KETU" in the circuit diagrams are not used for this model.

Eg. 4

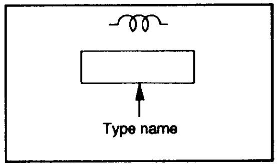


Fig. 3-2-4

Eg. 5

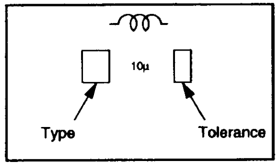

10µ
Type
Tolerance

Fig. 3-2-5

2-7. When Replaced ROM ICs or Upgraded Firmware

1. When replaced the following ROM ICs, it is necessary to write the data into the new ICs.
   1) IC615 (firmware)
   2) IC613 (Setup default data and other information)
2. When the firmware is upgraded, rewriting the new firmware into IC615 may be requested for servicing.
3. Connect a computer to the main PC board of the DVD video player with using DATA UPDATE KIT (P/No. 79080074). (Fig. 3-2-6)
4. Writing operation

   Refer to the instruction attached to the data floppy disc.

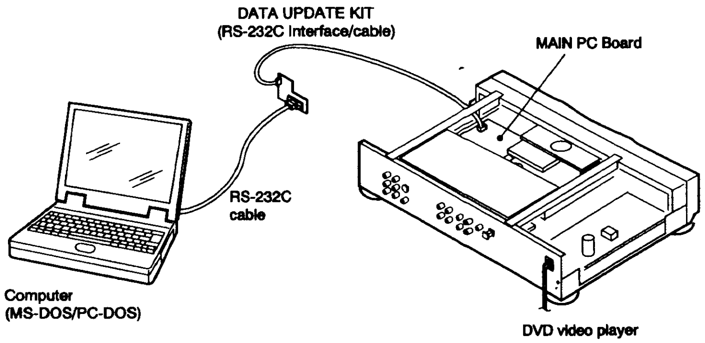

DATA UPDATE KIT
(RS-232C Interface/cable)
MAIN PC Board
RS-232C
cable
Computer
(MS-DOS/PC-DOS)
DVD video player

Fig. 3-2-6

Note:

- The firmware and setup data floppy discs are not available as service parts. For more information, consult TOSHIBA service office in your area.

2-4. Inductor Indication

Unit	None	.... H
	µ	.... µH
	m	.... mH
Tolerance	None	.... ±5%
	B	.... ±0.1%
	C	.... ±0.25%
	D	.... ±0.5%
	F	.... ±1%
	G	.... ±2%
	K	.... ±10%
	M	.... ±20%

Eg. 4

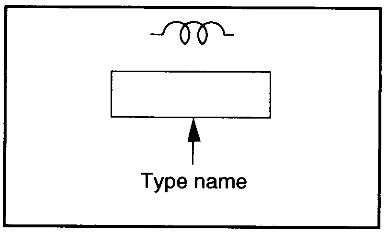


Fig. 3-2-4

Eg. 5

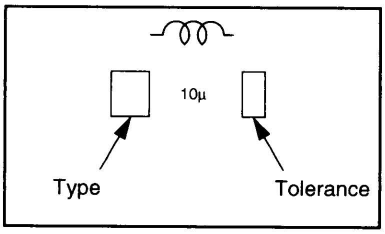


Fig. 3-2-5

2-5. Waveform and Voltage Measurement

- The waveforms for CD/DVD and RF shown in the circuit diagrams are obtained when a test disc is played back.
- All voltage values except the waveforms are expressed in DC and measured by a digital voltmeter.

2-6. Others

- The parts marked with "NC" or "KETU" in the circuit diagrams are not used for this model.

2-7. When Replaced ROM ICs or Upgraded Firmware

1. When replaced the following ROM ICs, it is necessary to write the data into the new ICs.
   1) IC615 (firmware)
   2) IC613 (Setup default data and other information)
2. When the firmware is upgraded, rewriting the new firmware into IC615 may be requested for servicing.
3. Connect a computer to the main PC board of the DVD video player with using DATA UPDATE KIT (P/No. 79080074). (Fig. 3-2-6)
4. Writing operation

   Refer to the instruction attached to the data floppy disc.

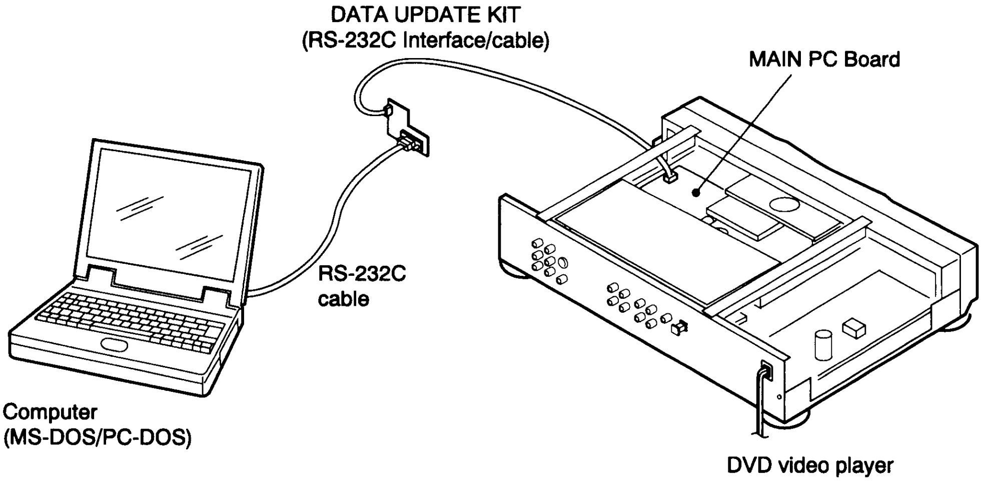

DATA UPDATE KIT
(RS-232C Interface/cable)
MAIN PC Board
RS-232C cable
Computer (MS-DOS/PC-DOS)
DVD video player

Fig. 3-2-6

Note:

- The firmware and setup data floppy discs are not available as service parts.
  For more information, consult TOSHIBA service office in your area.

3. PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

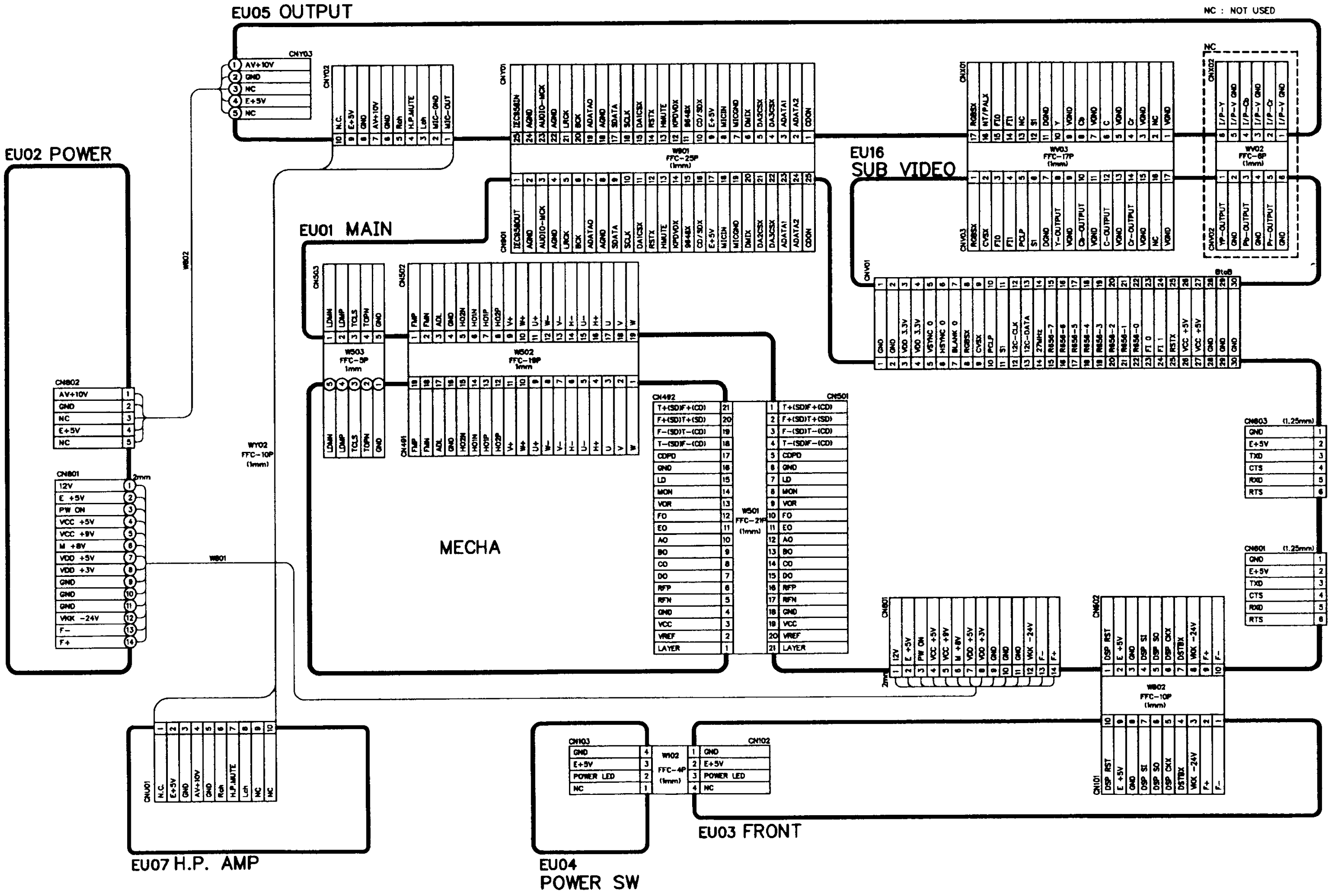
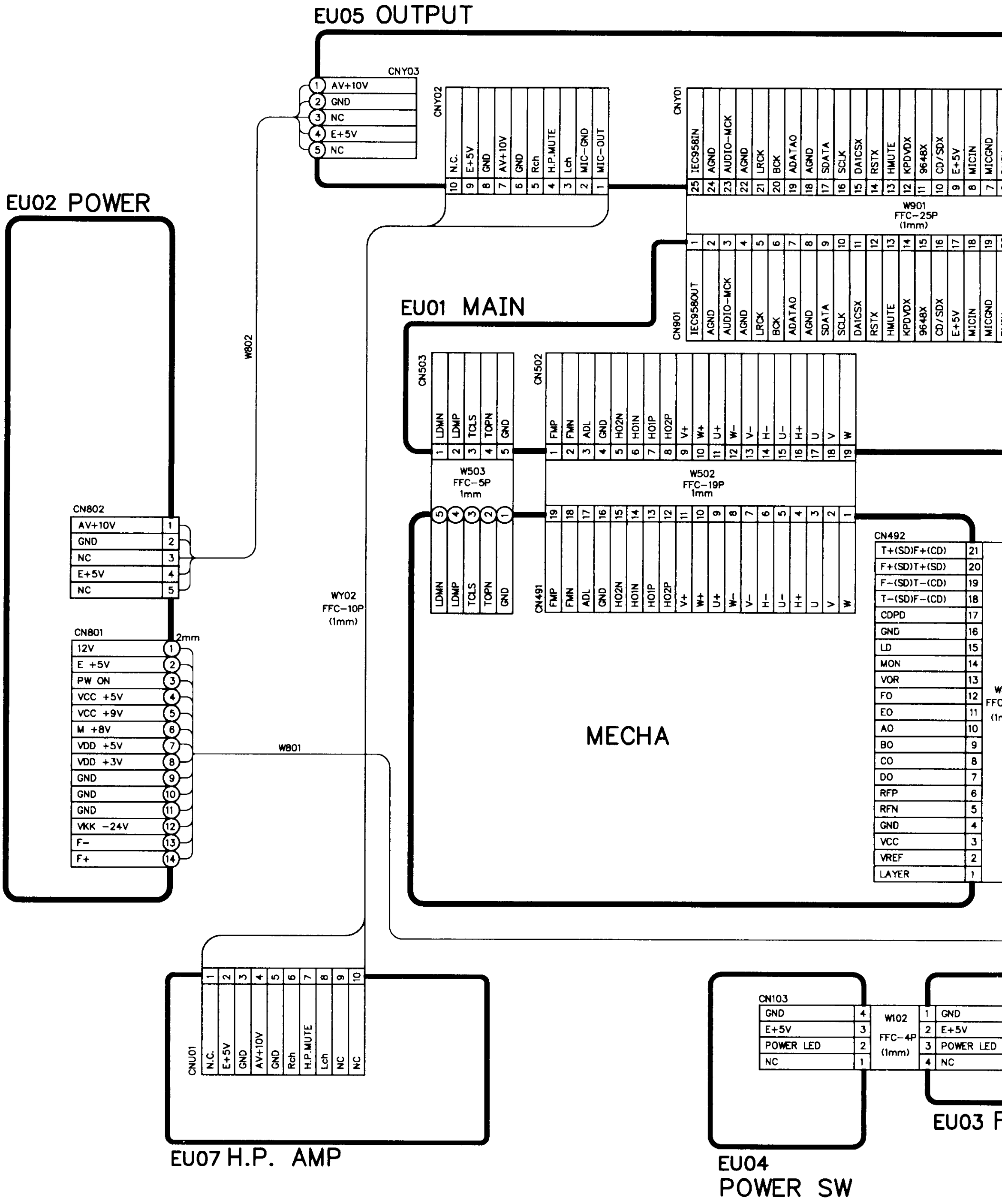

EU05 OUTPUT
NC : NOT USED
EU02 POWER
EU01 MAIN
EU16 SUB VIDEO
MECHA
EU07 H.P. AMP
EU04 POWER SW
EU03 FRONT
CNY03
CNY02
CNY01
CNX01
CNX02
CNV02
CNV03
CNV01
CN901
CN503
CN502
CN491
CN492
CN501
CN802
CN801
CN803
CN601
CN602
CN101
CN102
CN103
CNU01
W801
W802
WY01 FFC-25P (1mm)
WV03 FFC-17P (1mm)
WV02 FFC-6P (1mm)
W503 FFC-5P 1mm
W502 FFC-18P 1mm
W501 FFC-21P (1mm)
WY02 FFC-10P (1mm)
W602 FFC-10P (1mm)
W102 FFC-4P (1mm)
BtoB
2mm
(1.25mm)

Fig. 3-3-1

3. PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM


EU05 OUTPUT
CNY03
AV+10V
GND
NC
E+5V
NC
CNY02
N.C.
E+5V
GND
AV+10V
GND
Rch
H.P.MUTE
Lch
MIC-GND
MIC-OUT
CNY01
IEC958IN
AGND
AUDIO-MCK
AGND
LRCK
BCK
ADATAO
AGND
SDATA
SCLK
DA1CSX
RSTX
HMUTE
KPDVDX
9648X
CD/SDX
E+5V
MICIN
MICGND
W901
FFC-25P
(1mm)
CN901
IEC958OUT
EU02 POWER
W802
EU01 MAIN
CN503
LDMN
LDMP
TCLS
TOPN
GND
CN502
FMP
FMN
ADL
GND
HO2N
HO1N
HO1P
HO2P
V+
W+
U+
W-
V-
H-
U-
H+
U
V
W
W503
FFC-5P
1mm
W502
FFC-19P
1mm
CN802
AV+10V
GND
NC
E+5V
NC
WY02
FFC-10P
(1mm)
CN491
CN492
T+(SD)F+(CD)
F+(SD)T+(SD)
F-(SD)T-(CD)
T-(SD)F-(CD)
CDPD
GND
LD
MON
VOR
FO
EO
AO
BO
CO
DO
RFP
RFN
GND
VCC
VREF
LAYER
CN801
2mm
12V
E +5V
PW ON
VCC +5V
VCC +9V
M +8V
VDD +5V
VDD +3V
GND
GND
GND
VKK -24V
F-
F+
W801
MECHA
CNU01
N.C.
E+5V
GND
AV+10V
GND
Rch
H.P.MUTE
Lch
NC
NC
EU07 H.P. AMP
CN103
GND
E+5V
POWER LED
NC
W102
FFC-4P
(1mm)
GND
E+5V
POWER LED
NC
EU04
POWER SW
EU03

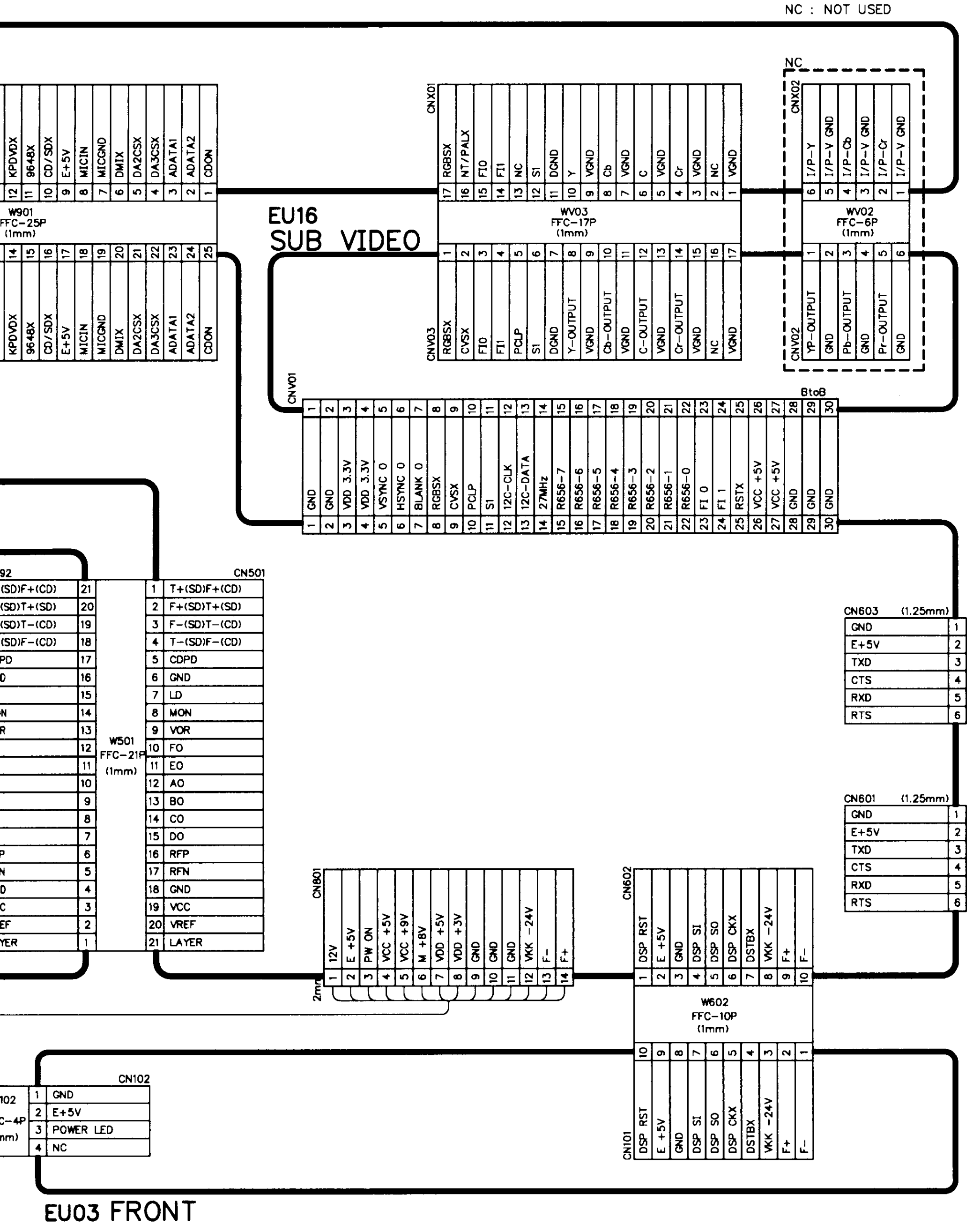

NC : NOT USED
NC
EU16
SUB VIDEO
EU03 FRONT
W901
FFC-25P
(1mm)
KPDVDX
9648X
CD/SDX
E+5V
MICIN
MICGND
DMIX
DA2CSX
DA3CSX
ADATA1
ADATA2
CDON
CNX01
RGBSX
NT/PALX
FI0
FI1
NC
S1
DGND
Y
VGND
Cb
VGND
C
VGND
Cr
VGND
NC
VGND
WV03
FFC-17P
(1mm)
CNV03
RGBSX
CVSX
FI0
FI1
PCLP
S1
DGND
Y-OUTPUT
VGND
Cb-OUTPUT
VGND
C-OUTPUT
VGND
Cr-OUTPUT
VGND
NC
VGND
CNX02
I/P-Y
I/P-V GND
I/P-Cb
I/P-V GND
I/P-Cr
I/P-V GND
WV02
FFC-6P
(1mm)
CNV02
YP-OUTPUT
GND
Pb-OUTPUT
GND
Pr-OUTPUT
GND
CNV01
BtoB
GND
GND
VDD 3.3V
VDD 3.3V
VSYNC 0
HSYNC 0
BLANK 0
RGBSX
CVSX
PCLP
S1
12C-CLK
12C-DATA
27MHz
R656-7
R656-6
R656-5
R656-4
R656-3
R656-2
R656-1
R656-0
FI 0
FI 1
RSTX
VCC +5V
VCC +5V
GND
GND
GND
CN501
W501
FFC-21P
(1mm)
T+(SD)F+(CD)
F+(SD)T+(SD)
F-(SD)T-(CD)
T-(SD)F-(CD)
CDPD
GND
LD
MON
VOR
FO
EO
AO
BO
CO
DO
RFP
RFN
GND
VCC
VREF
LAYER
CN603 (1.25mm)
CN601 (1.25mm)
GND
E+5V
TXD
CTS
RXD
RTS
CN801
12V
E +5V
PW ON
VCC +5V
VCC +9V
M +8V
VDD +5V
VDD +3V
GND
GND
GND
VKK -24V
F-
F+
2mm
CN602
W602
FFC-10P
(1mm)
CN101
DSP RST
E +5V
GND
DSP SI
DSP SO
DSP CKX
DSTBX
VKK -24V
F+
F-
CN102
GND
E+5V
POWER LED
NC

Fig. 3-3-1

4. BLOCK DIAGRAMS

4-1. Overall Block Diagram

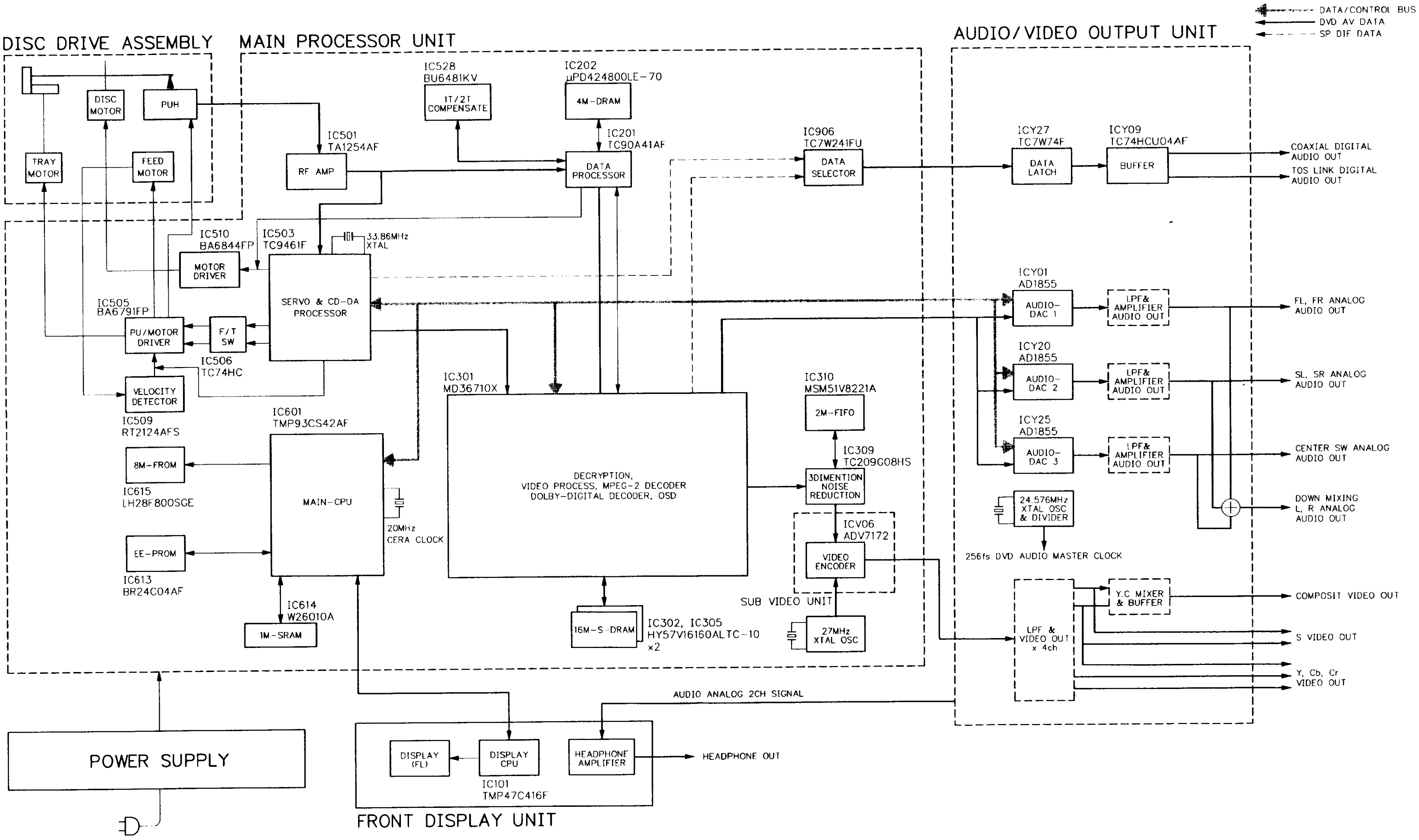
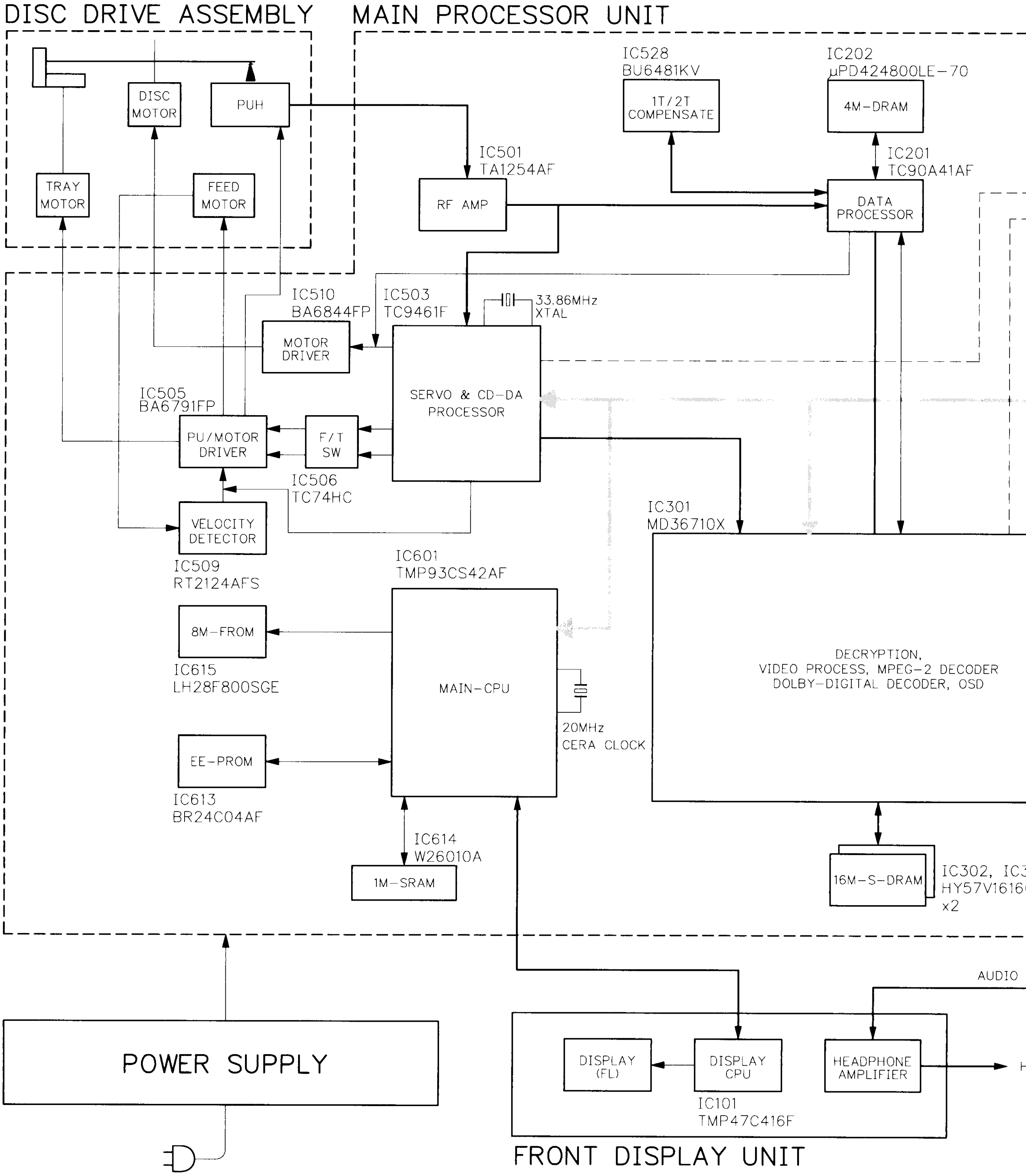

DATA/CONTROL BUS
DVD AV DATA
SP DIF DATA
DISC DRIVE ASSEMBLY
DISC MOTOR
PUH
TRAY MOTOR
FEED MOTOR
MAIN PROCESSOR UNIT
IC528 BU6481KV
1T/2T COMPENSATE
IC202 μPD424800LE-70
4M-DRAM
IC201 TC90A41AF
DATA PROCESSOR
IC501 TA1254AF
RF AMP
IC510 BA6844FP
MOTOR DRIVER
IC503 TC9461F
33.86MHz XTAL
SERVO & CD-DA PROCESSOR
IC505 BA6791FP
PU/MOTOR DRIVER
F/T SW
IC506 TC74HC
VELOCITY DETECTOR
IC509 RT2124AFS
IC601 TMP93CS42AF
MAIN-CPU
20MHz CERA CLOCK
8M-FROM
IC615 LH28F800SCE
EE-PROM
IC613 BR24C04AF
IC614 W26010A
1M-SRAM
IC906 TC7W241FU
DATA SELECTOR
IC301 MD36710X
DECRYPTION, VIDEO PROCESS, MPEG-2 DECODER DOLBY-DIGITAL DECODER, OSD
16M-S-DRAM
IC302, IC305 HY57V16160ALTC-10 x2
IC310 MSM51V8221A
2M-FIFO
IC309 TC209G08HS
3DIMENTION NOISE REDUCTION
ICV06 ADV7172
VIDEO ENCODER
SUB VIDEO UNIT
27MHz XTAL OSC
AUDIO/VIDEO OUTPUT UNIT
ICY27 TC7W74F
DATA LATCH
ICY09 TC74HCU04AF
BUFFER
COAXIAL DIGITAL AUDIO OUT
TOS LINK DIGITAL AUDIO OUT
ICY01 AD1855
AUDIO-DAC 1
ICY20 AD1855
AUDIO-DAC 2
ICY25 AD1855
AUDIO-DAC 3
LPF& AMPLIFIER AUDIO OUT
FL, FR ANALOG AUDIO OUT
SL, SR ANALOG AUDIO OUT
CENTER SW ANALOG AUDIO OUT
DOWN MIXING L, R ANALOG AUDIO OUT
24.576MHz XTAL OSC & DIVIDER
256fs DVD AUDIO MASTER CLOCK
Y.C MIXER & BUFFER
LPF & VIDEO OUT x 4ch
COMPOSIT VIDEO OUT
S VIDEO OUT
Y, Cb, Cr VIDEO OUT
AUDIO ANALOG 2CH SIGNAL
POWER SUPPLY
DISPLAY (FL)
DISPLAY CPU
IC101 TMP47C416F
HEADPHONE AMPLIFIER
HEADPHONE OUT
FRONT DISPLAY UNIT

Fig.3-4-1

4. BLOCK DIAGRAMS

4-1. Overall Block Diagram


DISC DRIVE ASSEMBLY
MAIN PROCESSOR UNIT
DISC MOTOR
PUH
TRAY MOTOR
FEED MOTOR
IC528
BU6481KV
1T/2T COMPENSATE
IC202
μPD424800LE-70
4M-DRAM
IC201
TC90A41AF
DATA PROCESSOR
IC501
TA1254AF
RF AMP
IC510
BA6844FP
MOTOR DRIVER
IC503
TC9461F
33.86MHz XTAL
SERVO & CD-DA PROCESSOR
IC505
BA6791FP
PU/MOTOR DRIVER
F/T SW
IC506
TC74HC
VELOCITY DETECTOR
IC509
RT2124AFS
IC301
MD36710X
DECRYPTION, VIDEO PROCESS, MPEG-2 DECODER DOLBY-DIGITAL DECODER, OSD
IC601
TMP93CS42AF
MAIN-CPU
20MHz CERA CLOCK
8M-FROM
IC615
LH28F800SGE
EE-PROM
IC613
BR24C04AF
IC614
W26010A
1M-SRAM
16M-S-DRAM
IC302, IC3
HY57V1616
x2
AUDIO
POWER SUPPLY
DISPLAY (FL)
DISPLAY CPU
IC101
TMP47C416F
HEADPHONE AMPLIFIER
H
FRONT DISPLAY UNIT

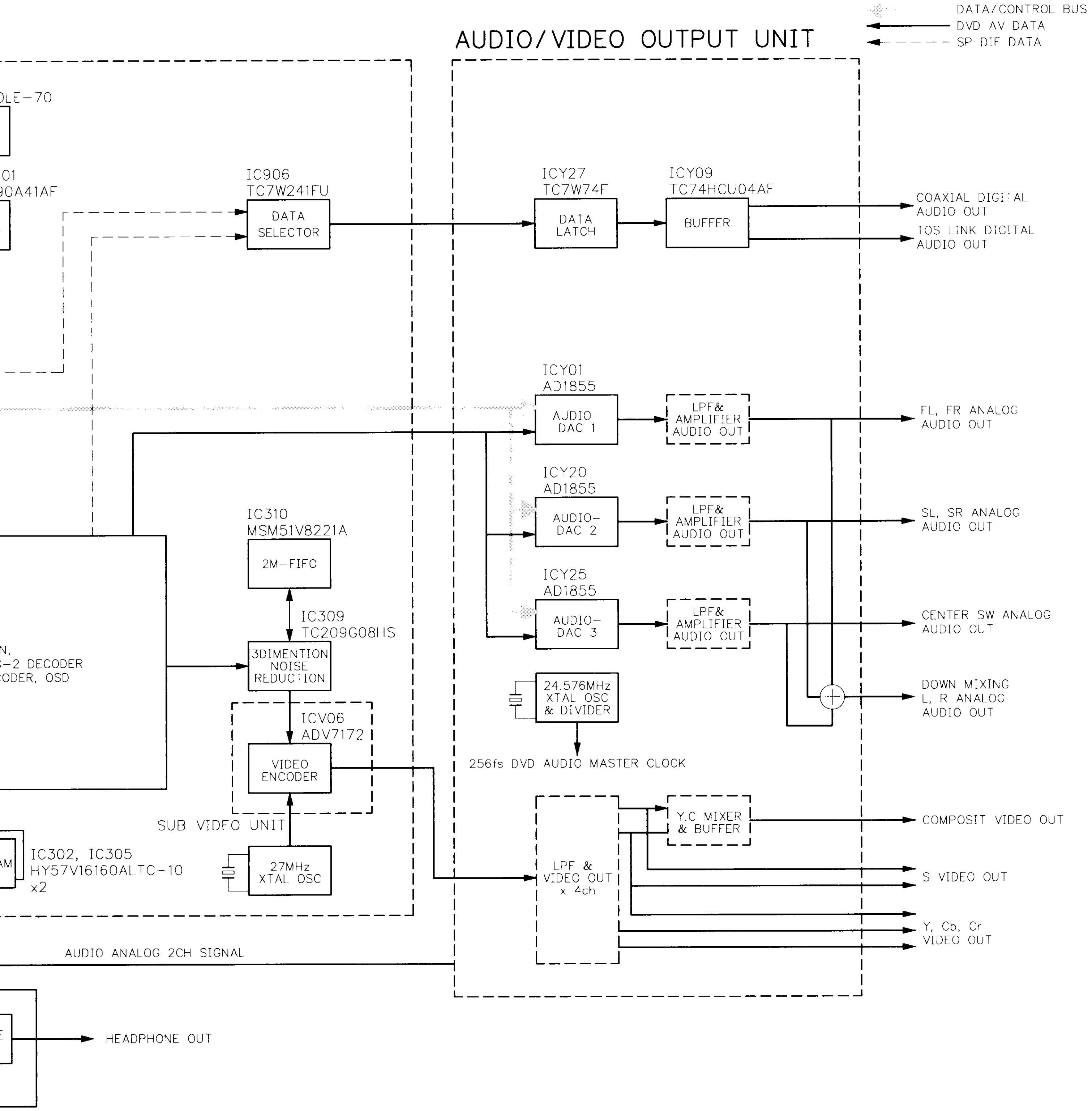

DATA/CONTROL BUS
DVD AV DATA
SP DIF DATA
AUDIO/VIDEO OUTPUT UNIT
LE-70
01
0A41AF
IC906
TC7W241FU
DATA SELECTOR
ICY27
TC7W74F
DATA LATCH
ICY09
TC74HCU04AF
BUFFER
COAXIAL DIGITAL AUDIO OUT
TOS LINK DIGITAL AUDIO OUT
ICY01
AD1855
AUDIO-DAC 1
LPF& AMPLIFIER AUDIO OUT
FL, FR ANALOG AUDIO OUT
ICY20
AD1855
AUDIO-DAC 2
LPF& AMPLIFIER AUDIO OUT
SL, SR ANALOG AUDIO OUT
ICY25
AD1855
AUDIO-DAC 3
LPF& AMPLIFIER AUDIO OUT
CENTER SW ANALOG AUDIO OUT
DOWN MIXING L, R ANALOG AUDIO OUT
24.576MHz XTAL OSC & DIVIDER
256fs DVD AUDIO MASTER CLOCK
IC310
MSM51V8221A
2M-FIFO
IC309
TC209G08HS
3DIMENTION NOISE REDUCTION
N,
-2 DECODER
ODER, OSD
ICV06
ADV7172
VIDEO ENCODER
SUB VIDEO UNIT
27MHz XTAL OSC
AM
IC302, IC305
HY57V16160ALTC-10
x2
LPF & VIDEO OUT x 4ch
Y.C MIXER & BUFFER
COMPOSIT VIDEO OUT
S VIDEO OUT
Y, Cb, Cr VIDEO OUT
AUDIO ANALOG 2CH SIGNAL
HEADPHONE OUT

Fig.3-4-1

4-2. Power Supply Block Diagram

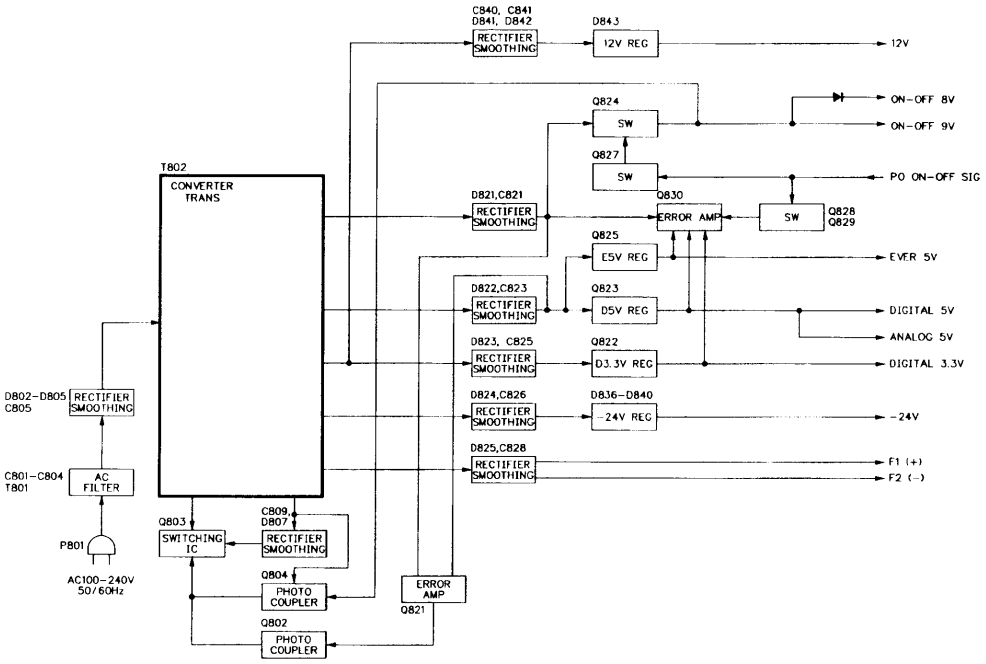

C840, C841
D841, D842
RECTIFIER SMOOTHING
D843
12V REG
12V
Q824
SW
ON-OFF 8V
ON-OFF 9V
Q827
SW
PO ON-OFF SIG
T802
CONVERTER TRANS
D821,C821
RECTIFIER SMOOTHING
Q830
ERROR AMP
SW
Q828
Q829
Q825
E5V REG
EVER 5V
D822,C823
RECTIFIER SMOOTHING
Q823
D5V REG
DIGITAL 5V
ANALOG 5V
D823, C825
RECTIFIER SMOOTHING
Q822
D3.3V REG
DIGITAL 3.3V
D802-D805
C805
RECTIFIER SMOOTHING
D824,C826
RECTIFIER SMOOTHING
D836-D840
-24V REG
-24V
D825,C828
RECTIFIER SMOOTHING
F1 (+)
F2 (-)
C801-C804
T801
AC FILTER
Q803
SWITCHING IC
C809,
D807
RECTIFIER SMOOTHING
P801
AC100-240V
50/60Hz
Q804
PHOTO COUPLER
ERROR AMP
Q821
Q802
PHOTO COUPLER

Fig. 3-4-2

4-3. Headphone AMP Block Diagram

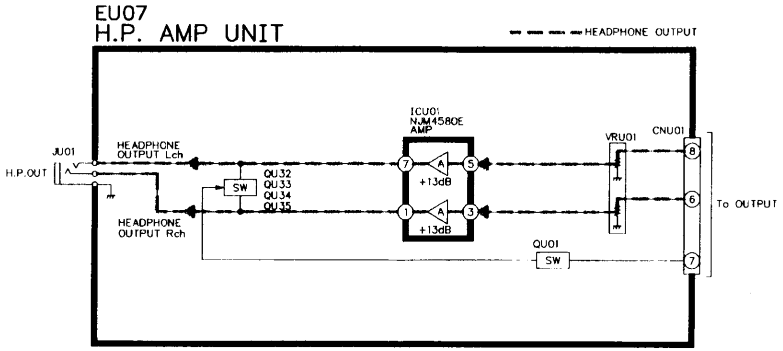
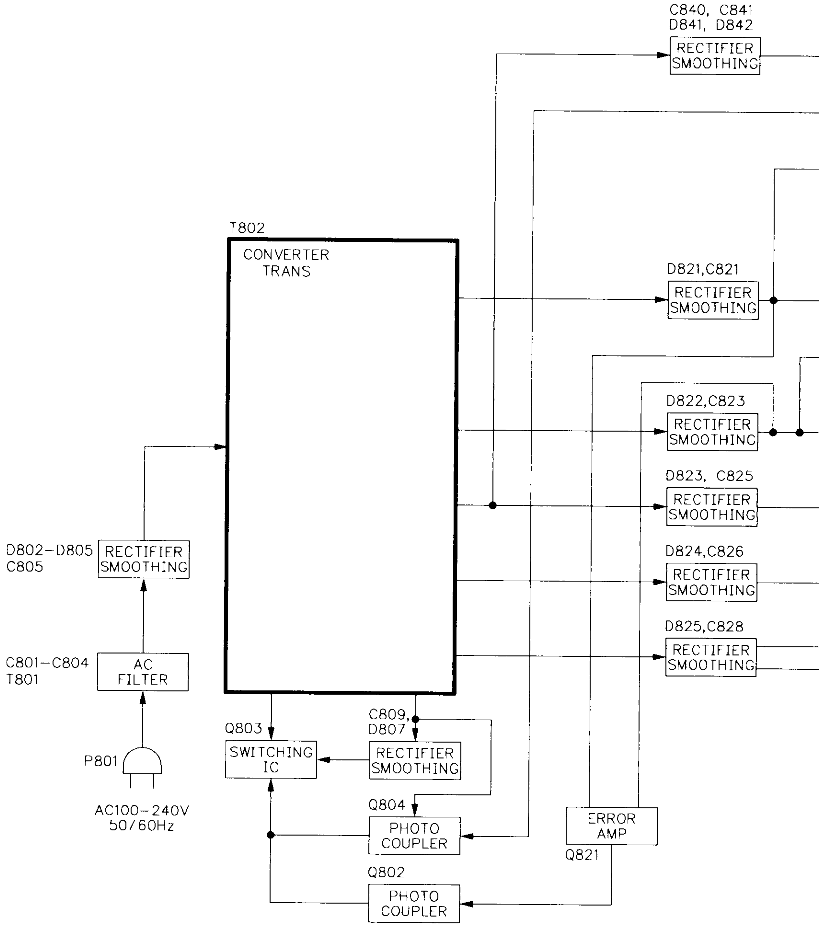
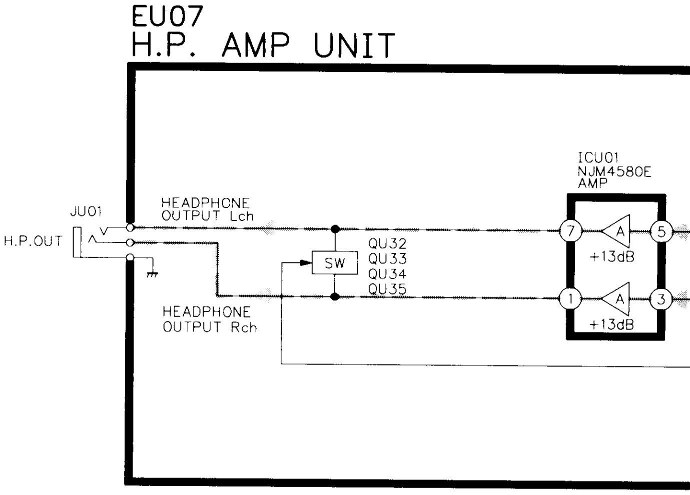

EU07
H.P. AMP UNIT
HEADPHONE OUTPUT
ICU01
NJM4580E
AMP
VRU01
CNU01
JU01
H.P.OUT
HEADPHONE OUTPUT Lch
7
A
5
+13dB
8
SW
QU32
QU33
QU34
QU35
6
To OUTPUT
1
A
3
+13dB
HEADPHONE OUTPUT Rch
QU01
SW
7

Fig. 3-4-3

4-2. Power Supply Block Diagram


C840, C841
D841, D842
RECTIFIER SMOOTHING
T802
CONVERTER TRANS
D821,C821
RECTIFIER SMOOTHING
D822,C823
RECTIFIER SMOOTHING
D823, C825
RECTIFIER SMOOTHING
D824,C826
RECTIFIER SMOOTHING
D825,C828
RECTIFIER SMOOTHING
D802–D805
C805
RECTIFIER SMOOTHING
C801–C804
T801
AC FILTER
P801
AC100–240V
50/60Hz
Q803
SWITCHING IC
C809,
D807
RECTIFIER SMOOTHING
Q804
PHOTO COUPLER
Q802
PHOTO COUPLER
ERROR AMP
Q821

4-3. Headphone AMP Block Diagram


EU07
H.P. AMP UNIT
ICU01
NJM4580E
AMP
JU01
H.P.OUT
HEADPHONE OUTPUT Lch
HEADPHONE OUTPUT Rch
SW
QU32
QU33
QU34
QU35
7
A
5
+13dB
1
A
3
+13dB

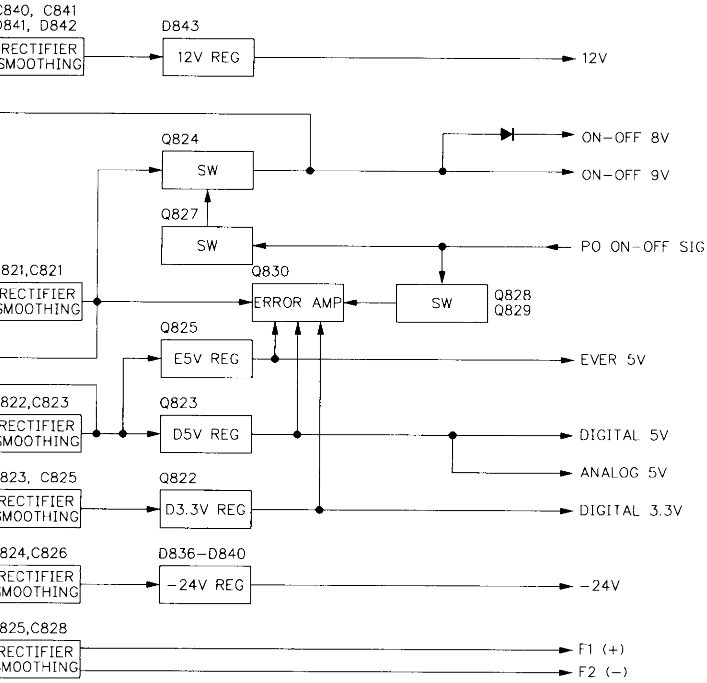

C840, C841
D841, D842
RECTIFIER
SMOOTHING
D843
12V REG
12V
Q824
SW
ON-OFF 8V
ON-OFF 9V
Q827
SW
PO ON-OFF SIG
821,C821
RECTIFIER
SMOOTHING
Q830
ERROR AMP
SW
Q828
Q829
Q825
E5V REG
EVER 5V
822,C823
RECTIFIER
SMOOTHING
Q823
D5V REG
DIGITAL 5V
ANALOG 5V
823, C825
RECTIFIER
SMOOTHING
Q822
D3.3V REG
DIGITAL 3.3V
824,C826
RECTIFIER
SMOOTHING
D836-D840
-24V REG
-24V
825,C828
RECTIFIER
SMOOTHING
F1 (+)
F2 (-)

Fig. 3-4-2

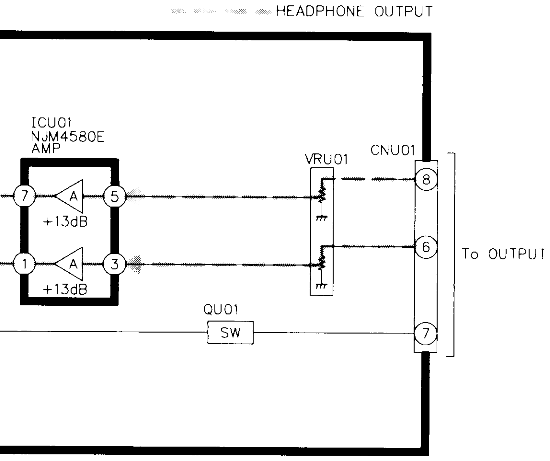

HEADPHONE OUTPUT
ICU01
NJM4580E
AMP
7
A
5
+13dB
1
A
3
+13dB
QU01
SW
VRU01
CNU01
8
6
7
To OUTPUT

Fig. 3-4-3

4-4. Front Display Block Diagram

4-4-1. Front Display Microcomputer Terminal Function

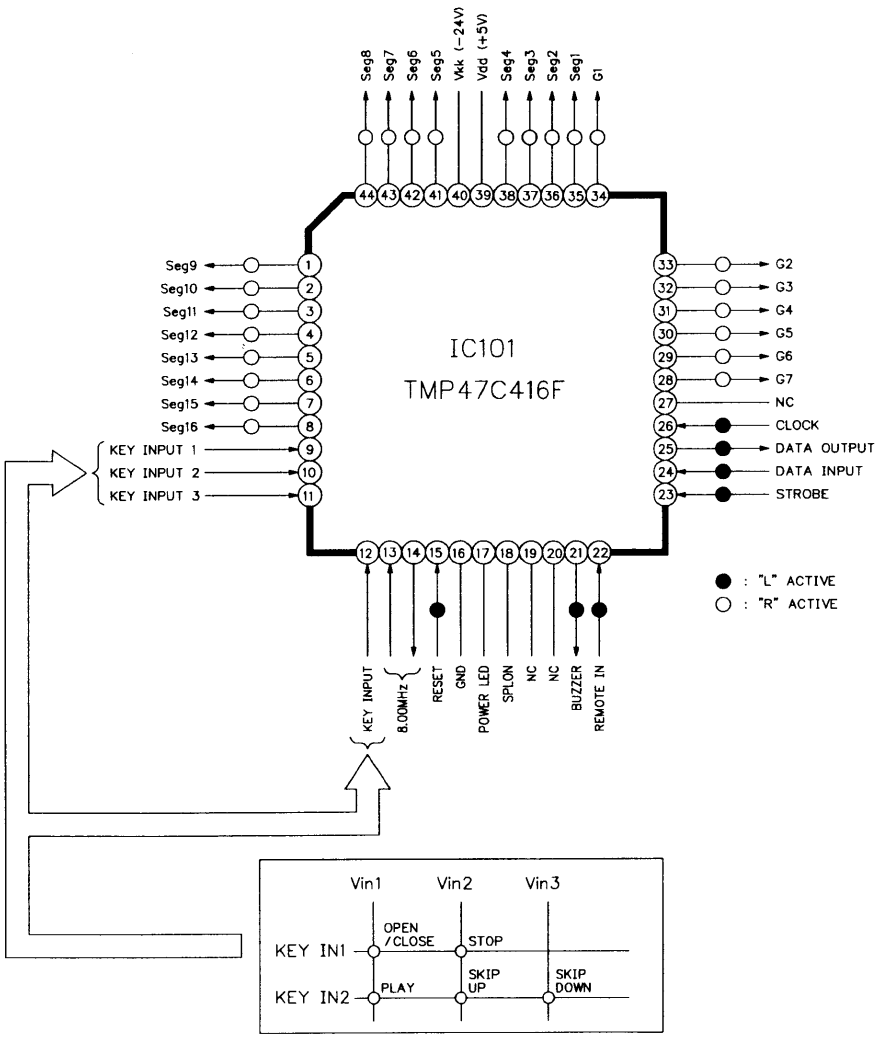

Seg8
Seg7
Seg6
Seg5
Vkk (−24V)
Vdd (+5V)
Seg4
Seg3
Seg2
Seg1
G1
Seg9
Seg10
Seg11
Seg12
Seg13
Seg14
Seg15
Seg16
KEY INPUT 1
KEY INPUT 2
KEY INPUT 3
IC101
TMP47C416F
G2
G3
G4
G5
G6
G7
NC
CLOCK
DATA OUTPUT
DATA INPUT
STROBE
KEY INPUT
8.00MHz
RESET
GND
POWER LED
SPLON
NC
NC
BUZZER
REMOTE IN
● : "L" ACTIVE
○ : "R" ACTIVE
Vin1
Vin2
Vin3
KEY IN1
KEY IN2
OPEN /CLOSE
STOP
PLAY
SKIP UP
SKIP DOWN

Fig. 3-4-4

4-4-2. Front Display

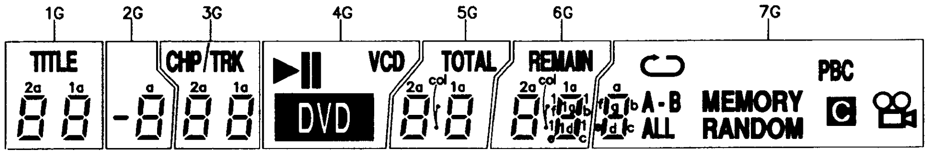

1G
2G
3G
4G
5G
6G
7G
TITLE
CHP/TRK
VCD
TOTAL
REMAIN
DVD
2a
1a
a
col
A-B
ALL
MEMORY
RANDOM
PBC
C

Fig. 3-4-5

4-4-3. Front Display Pattern

ANODE CONNECTION

	1G	2G	3G	4G	5G	6G	7G
P1	1a	a	1a	CD	1a	1a	A·
P2	1b	b	1b	V	1b	1b	B
P3	1c	c	1c	–	1c	1c	RANDOM
P4	1d	d	1d	DVD	1d	1d	ALL
P5	1e	e	1e	–	1e	1e	🎥
P6	1f	f	1f	‖	1f	1f	MEMORY
P7	1g	g	1g	▶	1g	1g	PBC
P8	–	–	–	–	col	col	C
P9	2a	–	2a	–	2a	2a	a
P10	2b	–	2b	–	2b	2b	b
P11	2c	–	2c	–	2c	2c	c
P12	2d	–	2d	–	2d	2d	d
P13	2e	–	2e	–	2e	2e	e
P14	2f	–	2f	–	2f	2f	f
P15	2g	–	2g	–	2g	2g	g
P16	TITLE	–	CHP/TRK	–	TOTAL	REMAIN	⟲

7-ST-33GK
ANODE CONNECTION

Fig. 3-4-6

4-4. Front Display Block Diagram

4-4-1. Front Display Microcomputer Terminal Function

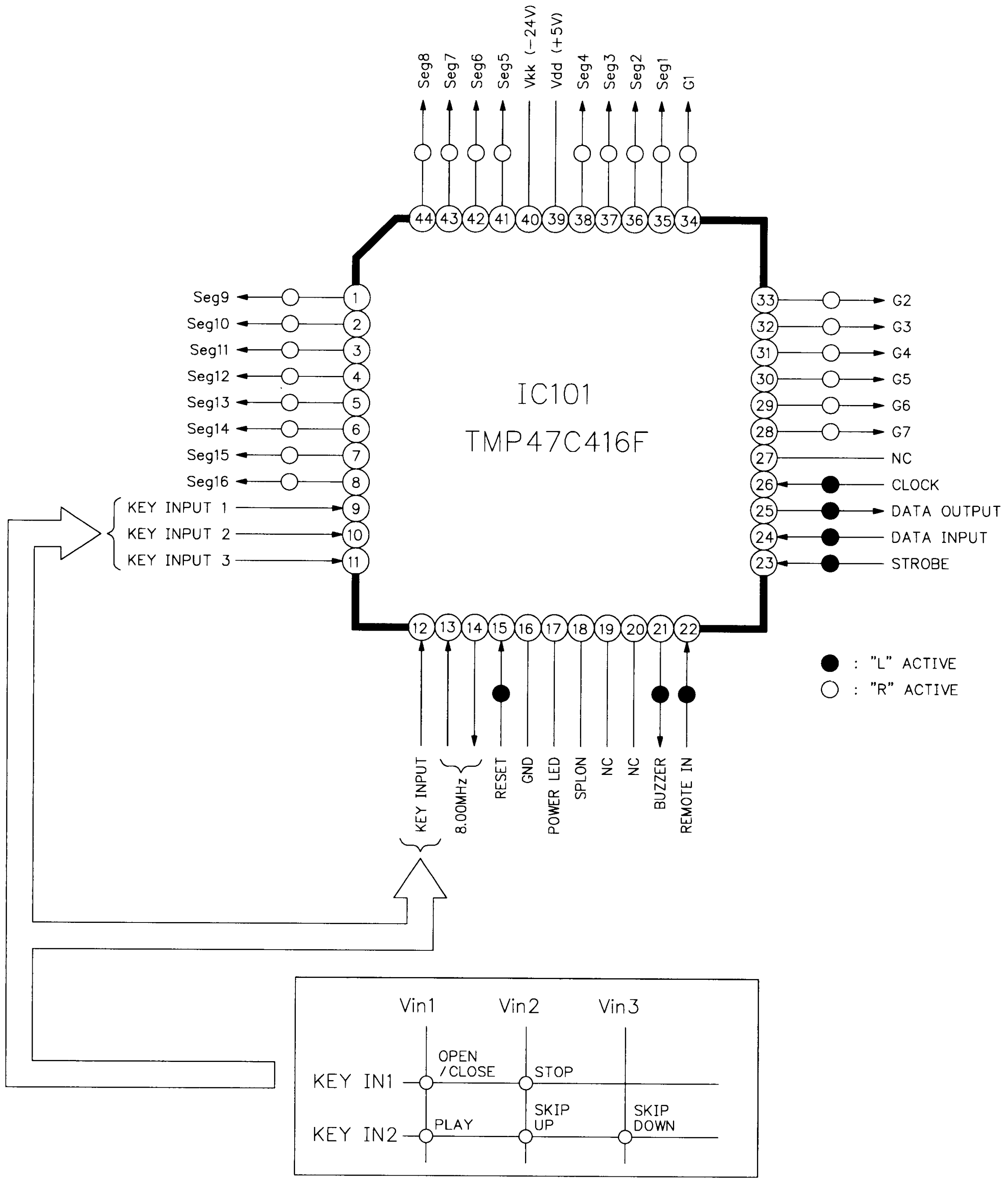

Seg8
Seg7
Seg6
Seg5
Vkk (−24V)
Vdd (+5V)
Seg4
Seg3
Seg2
Seg1
G1
44
43
42
41
40
39
38
37
36
35
34
Seg9
Seg10
Seg11
Seg12
Seg13
Seg14
Seg15
Seg16
KEY INPUT 1
KEY INPUT 2
KEY INPUT 3
1
2
3
4
5
6
7
8
9
10
11
IC101
TMP47C416F
33
32
31
30
29
28
27
26
25
24
23
G2
G3
G4
G5
G6
G7
NC
CLOCK
DATA OUTPUT
DATA INPUT
STROBE
12
13
14
15
16
17
18
19
20
21
22
KEY INPUT
8.00MHz
RESET
GND
POWER LED
SPLON
NC
NC
BUZZER
REMOTE IN
● : "L" ACTIVE
○ : "R" ACTIVE
Vin1
Vin2
Vin3
KEY IN1
KEY IN2
OPEN /CLOSE
STOP
PLAY
SKIP UP
SKIP DOWN

Fig. 3-4-4

4-4-2. Front Display

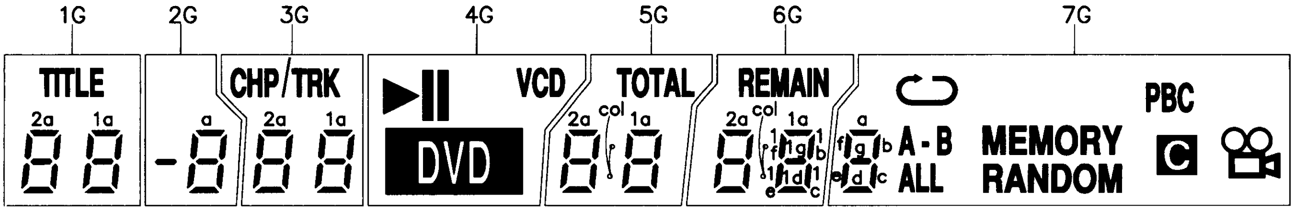

1G
2G
3G
4G
5G
6G
7G
TITLE
2a
1a
a
CHP/TRK
2a
1a
VCD
DVD
2a
col
1a
TOTAL
REMAIN
2a
col
1a
f
g
b
e
d
c
a
A-B
ALL
PBC
MEMORY
RANDOM
C

Fig. 3-4-5

4-4-3. Front Display Pattern

ANODE CONNECTION

	1G	2G	3G	4G	5G	6G	7G
P1	1a	a	1a	**CD**	1a	1a	**A·**
P2	1b	b	1b	**V**	1b	1b	**B**
P3	1c	c	1c	–	1c	1c	**RANDOM**
P4	1d	d	1d	**DVD**	1d	1d	**ALL**
P5	1e	e	1e	–	1e	1e	🎥
P6	1f	f	1f	❚❚	1f	1f	**MEMORY**
P7	1g	g	1g	▶	1g	1g	**PBC**
P8	–	–	–	–	col	col	**C**
P9	2a	–	2a	–	2a	2a	a
P10	2b	–	2b	–	2b	2b	b
P11	2c	–	2c	–	2c	2c	c
P12	2d	–	2d	–	2d	2d	d
P13	2e	–	2e	–	2e	2e	e
P14	2f	–	2f	–	2f	2f	f
P15	2g	–	2g	–	2g	2g	g
P16	**TITLE**	**–**	**CHP/TRK**	–	**TOTAL**	**REMAIN**	🔁

7-ST-33GK
ANODE CONNECTION

Fig. 3-4-6

4-4-4. Front Display Block Diagram

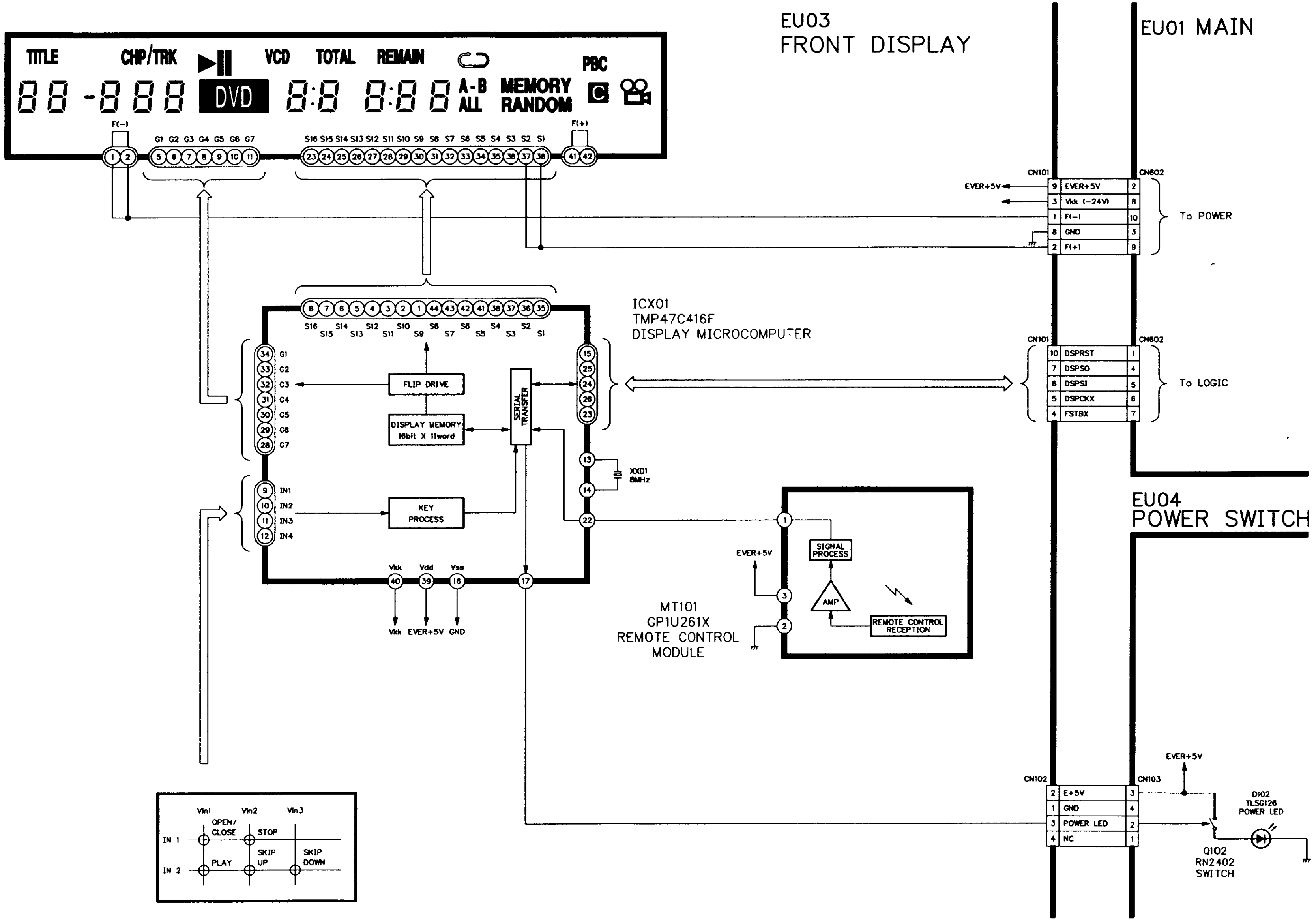
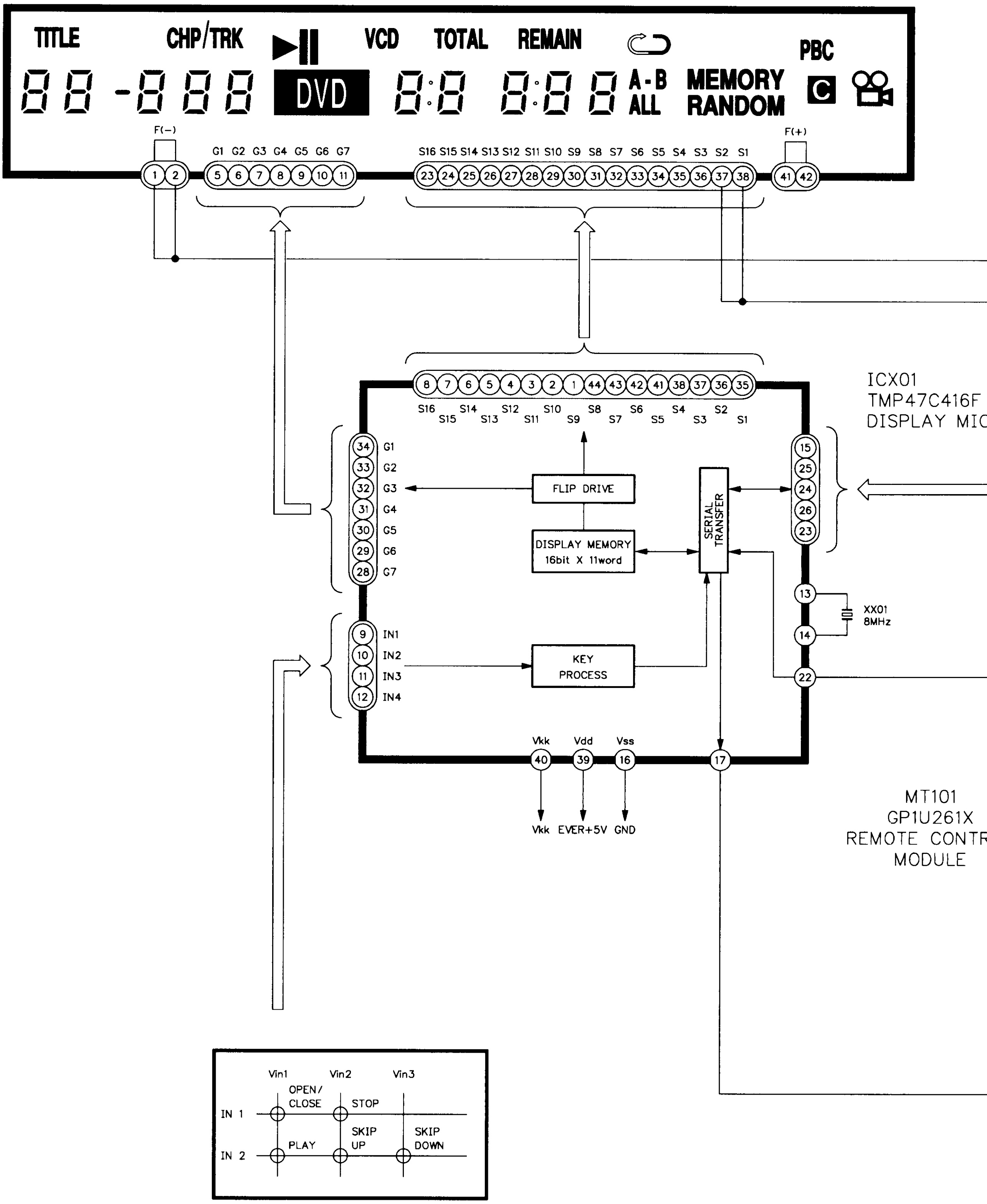

EU03
FRONT DISPLAY
EU01 MAIN
EU04
POWER SWITCH
TITLE
CHP/TRK
VCD
TOTAL
REMAIN
PBC
DVD
A-B
ALL
MEMORY
RANDOM
F(−)
F(+)
G1 G2 G3 G4 G5 G6 G7
S16 S15 S14 S13 S12 S11 S10 S9 S8 S7 S6 S5 S4 S3 S2 S1
ICX01
TMP47C416F
DISPLAY MICROCOMPUTER
FLIP DRIVE
DISPLAY MEMORY
16bit X 11word
SERIAL TRANSFER
KEY PROCESS
IN1
IN2
IN3
IN4
Vkk
Vdd
Vss
Vkk EVER+5V GND
XX01
8MHz
MT101
GP1U261X
REMOTE CONTROL
MODULE
SIGNAL PROCESS
AMP
REMOTE CONTROL RECEPTION
EVER+5V
CN101
CN602
9 EVER+5V 2
3 Vkk (−24V) 8
1 F(−) 10
8 GND 3
2 F(+) 9
To POWER
10 DSPRST 1
7 DSPSO 4
6 DSPSI 5
5 DSPCKX 6
4 FSTBX 7
To LOGIC
CN102
CN103
2 E+5V 3
1 GND 4
3 POWER LED 2
4 NC 1
D102
TLSG126
POWER LED
Q102
RN2402
SWITCH
Vin1
Vin2
Vin3
IN 1
IN 2
OPEN/ CLOSE
STOP
PLAY
SKIP UP
SKIP DOWN

Fig. 3-4-7

4-4-4. Front Display Block Diagram


TITLE
CHP/TRK
VCD
TOTAL
REMAIN
PBC
DVD
A-B
ALL
MEMORY
RANDOM
C
F(−)
F(+)
G1 G2 G3 G4 G5 G6 G7
S16 S15 S14 S13 S12 S11 S10 S9 S8 S7 S6 S5 S4 S3 S2 S1
1 2 5 6 7 8 9 10 11
23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 41 42
8 7 6 5 4 3 2 1 44 43 42 41 38 37 36 35
S16 S15 S14 S13 S12 S11 S10 S9 S8 S7 S6 S5 S4 S3 S2 S1
ICX01
TMP47C416F
DISPLAY MIC
34 G1
33 G2
32 G3
31 G4
30 G5
29 G6
28 G7
FLIP DRIVE
DISPLAY MEMORY
16bit X 11word
SERIAL TRANSFER
15 25 24 26 23
13
14
XX01
8MHz
22
9 IN1
10 IN2
11 IN3
12 IN4
KEY PROCESS
Vkk Vdd Vss
40 39 16 17
Vkk EVER+5V GND
MT101
GP1U261X
REMOTE CONTR
MODULE
Vin1 Vin2 Vin3
IN 1
IN 2
OPEN/
CLOSE
STOP
PLAY
SKIP
UP
SKIP
DOWN

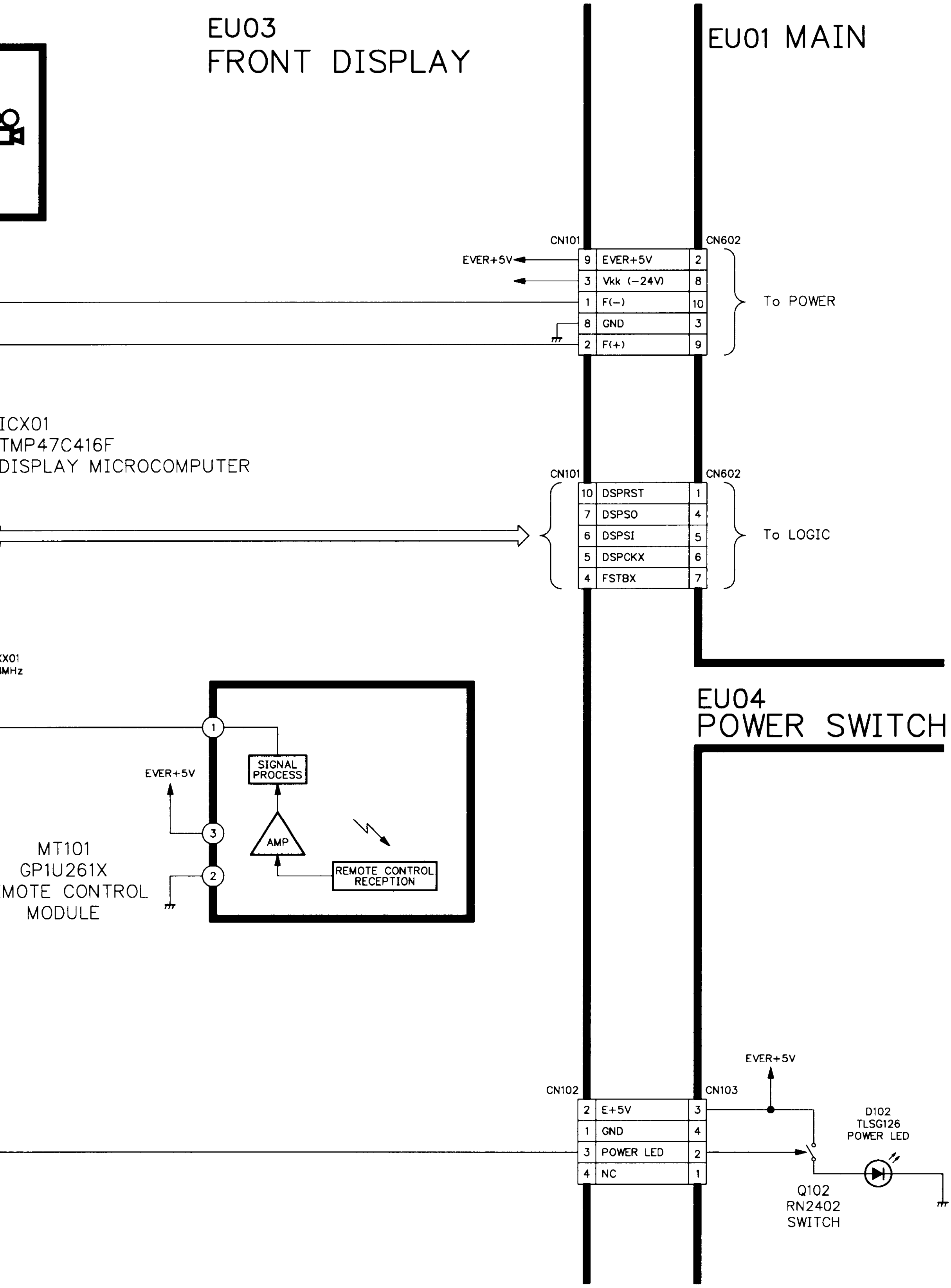

EU03
FRONT DISPLAY
EU01 MAIN
CN101
CN602
EVER+5V
9 EVER+5V 2
3 Vkk (−24V) 8
1 F(−) 10
8 GND 3
2 F(+) 9
To POWER
ICX01
TMP47C416F
DISPLAY MICROCOMPUTER
CN101
CN602
10 DSPRST 1
7 DSPSO 4
6 DSPSI 5
5 DSPCKX 6
4 FSTBX 7
To LOGIC
XO1
MHz
EU04
POWER SWITCH
1
SIGNAL PROCESS
EVER+5V
3
AMP
2
REMOTE CONTROL RECEPTION
MT101
GP1U261X
MOTE CONTROL
MODULE
EVER+5V
CN102
CN103
2 E+5V 3
1 GND 4
3 POWER LED 2
4 NC 1
D102
TLSG126
POWER LED
Q102
RN2402
SWITCH

Fig. 3-4-7

4-5. Main Block Diagrams

4-5-1. Servo System Block Diagram

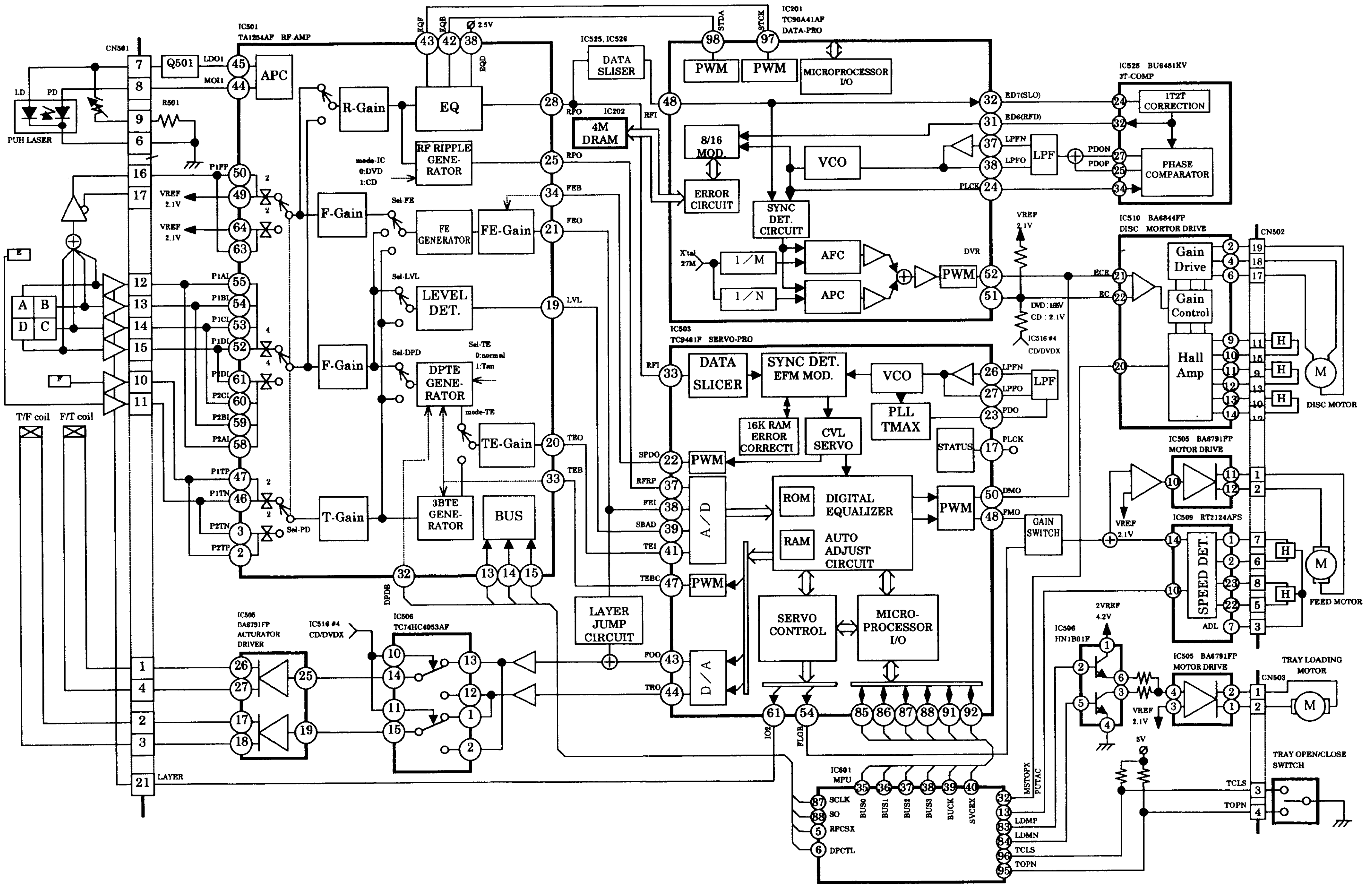
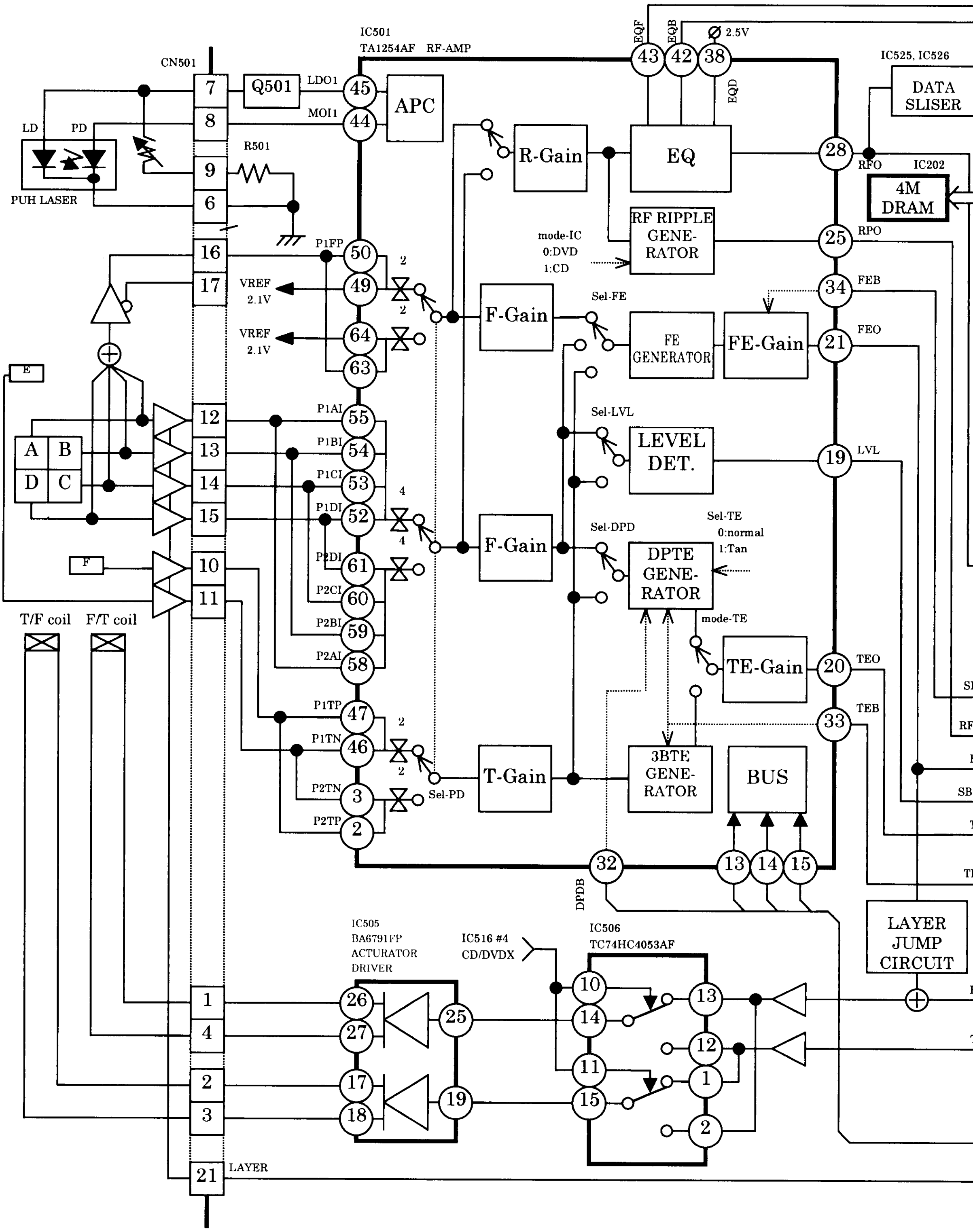

CN501
LD
PD
PUH LASER
R501
Q501
LDO1
MOI1
IC501
TA1254AF RF-AMP
APC
R-Gain
EQ
EQP
EQB
EQD
2.5V
RF RIPPLE GENE-RATOR
mode-IC
0:DVD
1:CD
F-Gain
Sel-FE
FE GENERATOR
FE-Gain
LEVEL DET.
Sel-LVL
Sel-DPD
DPTE GENE-RATOR
Sel-TE
0:normal
1:Tan
mode-TE
TE-Gain
T-Gain
Sel-PD
3BTE GENE-RATOR
BUS
DPDB
VREF 2.1V
P1FP
P1AI
P1BI
P1CI
P1DI
P2DI
P2CI
P2BI
P2AI
P1TP
P1TN
P2TN
P2TP
A
B
D
C
E
F
T/F coil
F/T coil
LAYER
RPO
FEB
FEO
LVL
TEO
TEB
IC525, IC526
DATA SLISER
IC202
4M DRAM
RFI
IC201
TC90A41AF
DATA-PRO
STDA
STCK
PWM
MICROPROCESSOR I/O
8/16 MOD.
ERROR CIRCUIT
VCO
SYNC DET. CIRCUIT
X'tal 27M
1／M
1／N
AFC
APC
DVR
ED7(SLO)
ED6(RFD)
LPFN
LPFO
PLCK
LPF
IC528 BU6481KV
3T-COMP
1T2T CORRECTION
PHASE COMPARATOR
PDON
PDOP
IC510 BA6844FP
DISC MORTOR DRIVE
Gain Drive
Gain Control
Hall Amp
ECR
EC
DVD : 1.8V
CD : 2.1V
IC516 #4
CD/DVDX
CN502
H
M
DISC MOTOR
IC503
TC9461F SERVO-PRO
DATA SLICER
SYNC DET. EFM MOD.
16K RAM ERROR CORRECTI
CVL SERVO
PLL TMAX
STATUS
PDO
SPDO
RFRP
FEI
SBAD
TEI
TEBC
A／D
D／A
ROM
RAM
DIGITAL EQUALIZER
AUTO ADJUST CIRCUIT
SERVO CONTROL
MICRO-PROCESSOR I/O
DMO
FMO
GAIN SWITCH
FOO
TRO
IO2
FLGB
LAYER JUMP CIRCUIT
IC505 BA6791FP
ACTURATOR DRIVER
IC506
TC74HC4053AF
IC505 BA6791FP
MOTOR DRIVE
IC509 RT2124APS
SPEED DET.
ADL
FEED MOTOR
2VREF 4.2V
IC506
HN1B01F
5V
TRAY LOADING MOTOR
CN503
TRAY OPEN/CLOSE SWITCH
TCLS
TOPN
IC601
MPU
SCLK
SO
RFCSX
DPCTL
BUS0
BUS1
BUS2
BUS3
BUCK
SVCEX
MSTOPX
PUTAC
LDMP
LDMN

Fig.3-4-8

4-5. Main Block Diagrams

4-5-1. Servo System Block Diagram


IC501
TA1254AF RF-AMP
CN501
EQF
EQB
Ø 2.5V
EQD
IC525, IC526
DATA SLISER
Q501
LDO1
MOI1
APC
LD
PD
PUH LASER
R501
R-Gain
EQ
RFO
IC202
4M DRAM
RF RIPPLE GENE-RATOR
RPO
mode-IC
0:DVD
1:CD
P1FP
VREF 2.1V
VREF 2.1V
Sel-FE
F-Gain
FE GENERATOR
FE-Gain
FEB
FEO
E
Sel-LVL
LEVEL DET.
LVL
P1AI
P1BI
P1CI
P1DI
P2DI
P2CI
P2BI
P2AI
A
B
D
C
F
Sel-DPD
Sel-TE
0:normal
1:Tan
F-Gain
DPTE GENE-RATOR
mode-TE
TE-Gain
TEO
TEB
T/F coil
F/T coil
P1TP
P1TN
P2TN
P2TP
Sel-PD
T-Gain
3BTE GENE-RATOR
BUS
DPDB
IC505
BA6791FP
ACTURATOR
DRIVER
IC516 #4
CD/DVDX
IC506
TC74HC4053AF
LAYER JUMP CIRCUIT
LAYER
7
8
9
6
16
17
12
13
14
15
10
11
1
4
2
3
21
45
44
50
49
64
63
55
54
53
52
61
60
59
58
47
46
3
2
43
42
38
28
25
34
21
19
20
33
32
13
14
15
26
27
25
17
18
19
10
14
11
15
13
12
1
2

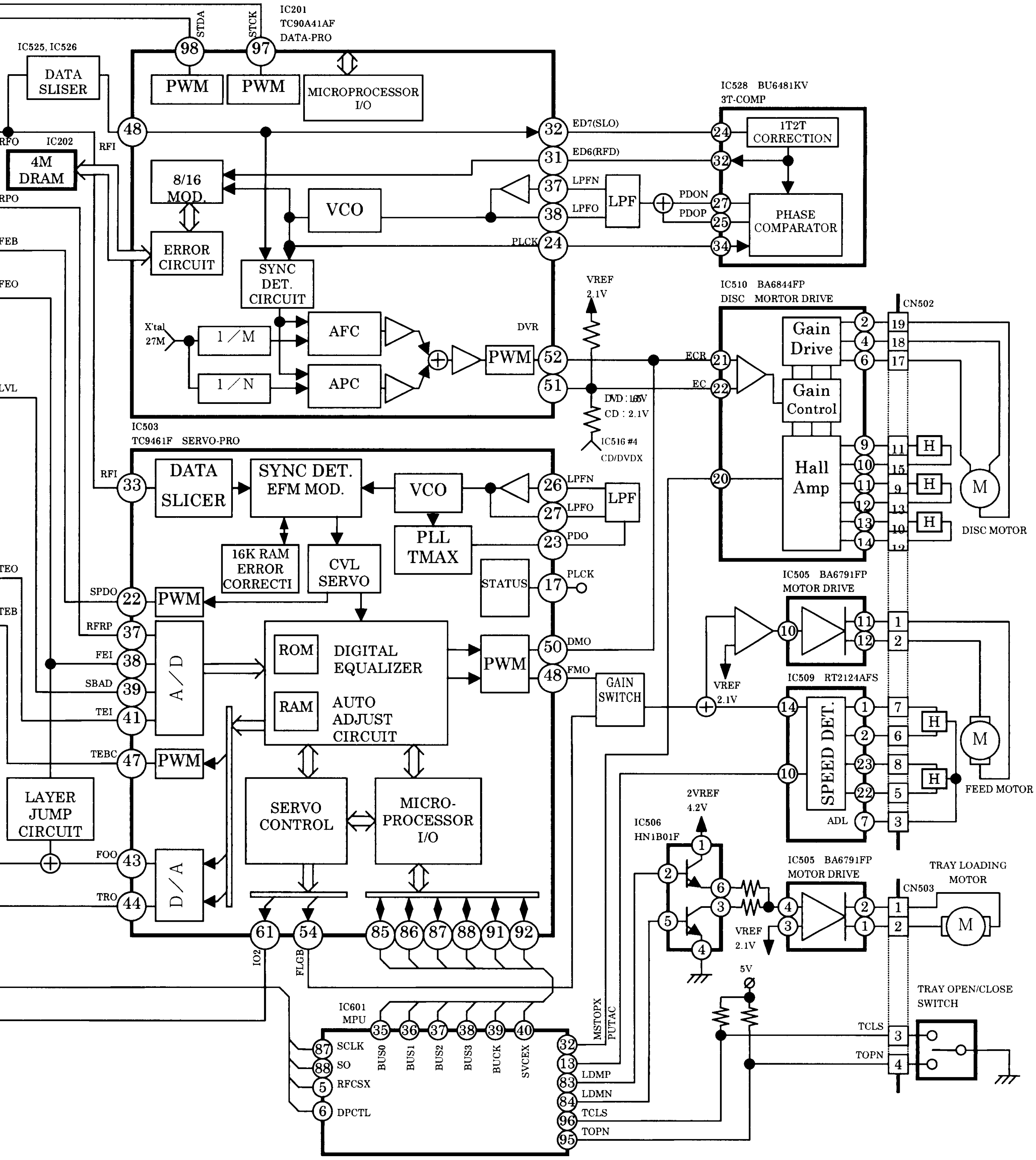

IC201
TC90A41AF
DATA-PRO
STDA
STCK
98
97
IC525, IC526
DATA SLISER
PWM
PWM
MICROPROCESSOR I/O
RFO
IC202
RFI
4M DRAM
RPO
48
32
ED7(SLO)
31
ED6(RFD)
8/16 MOD.
VCO
37
LPFN
38
LPFO
LPF
PDON
PDOP
PLCK
24
ERROR CIRCUIT
SYNC DET. CIRCUIT
FEB
FEO
X'tal 27M
1／M
1／N
AFC
APC
PWM
DVR
52
51
IC528 BU6481KV
3T-COMP
1T2T CORRECTION
24
32
27
25
34
PHASE COMPARATOR
VREF 2.1V
DVD : 1.65V
CD : 2.1V
IC516 #4
CD/DVDX
IC510 BA6844FP
DISC MORTOR DRIVE
ECR
21
EC
22
20
Gain Drive
Gain Control
Hall Amp
2
4
6
9
10
11
12
13
14
CN502
19
18
17
11
15
9
13
10
12
H
H
H
M
DISC MOTOR
LVL
IC503
TC9461F SERVO-PRO
RFI
33
DATA SLICER
SYNC DET. EFM MOD.
VCO
26
LPFN
27
LPFO
LPF
23
PDO
PLL TMAX
16K RAM ERROR CORRECTI
CVL SERVO
STATUS
17
PLCK
TEO
SPDO
22
PWM
TEB
RFRP
37
FEI
38
SBAD
39
TEI
41
A／D
ROM
RAM
DIGITAL EQUALIZER
AUTO ADJUST CIRCUIT
PWM
50
DMO
48
FMO
GAIN SWITCH
TEBC
47
PWM
LAYER JUMP CIRCUIT
FOO
43
TRO
44
D／A
SERVO CONTROL
MICRO-PROCESSOR I/O
61
54
85
86
87
88
91
92
IO2
FLGB
IC505 BA6791FP
MOTOR DRIVE
10
11
12
1
2
VREF 2.1V
IC509 RT2124AFS
14
10
SPEED DET.
1
2
23
22
ADL
7
7
6
8
5
3
H
H
M
FEED MOTOR
2VREF 4.2V
IC506
HN1B01F
1
2
6
3
5
4
IC505 BA6791FP
MOTOR DRIVE
4
3
2
1
VREF 2.1V
CN503
1
2
TRAY LOADING MOTOR
M
5V
TRAY OPEN/CLOSE SWITCH
TCLS
3
TOPN
4
IC601
MPU
35
36
37
38
39
40
BUS0
BUS1
BUS2
BUS3
BUCK
SVCEX
87
SCLK
88
SO
5
RFCSX
6
DPCTL
MSTOPX
PUTAC
32
13
83
LDMP
84
LDMN
96
TCLS
95
TOPN

Fig.3-4-8

4-5-2. Logical System Block Diagram

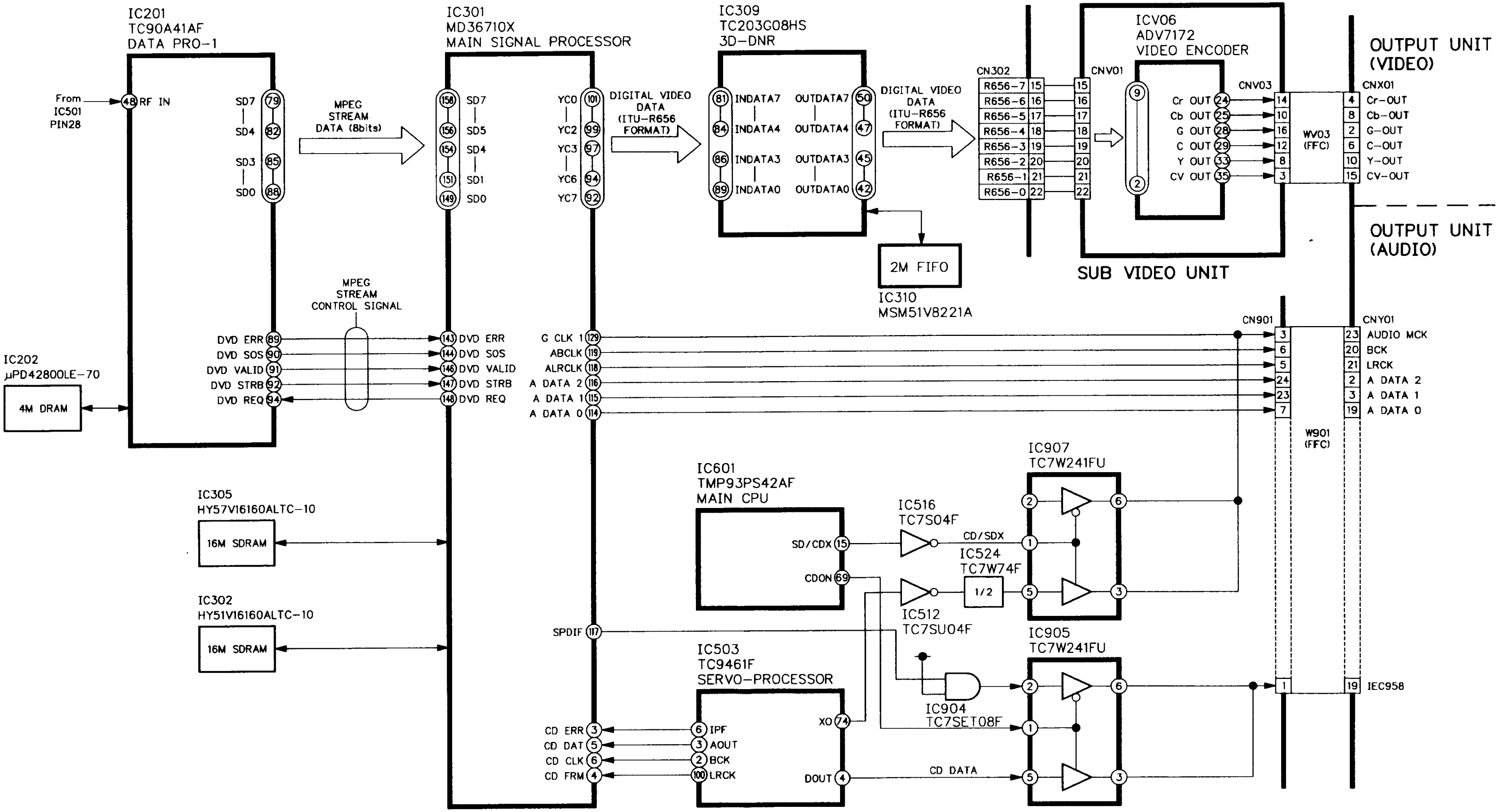
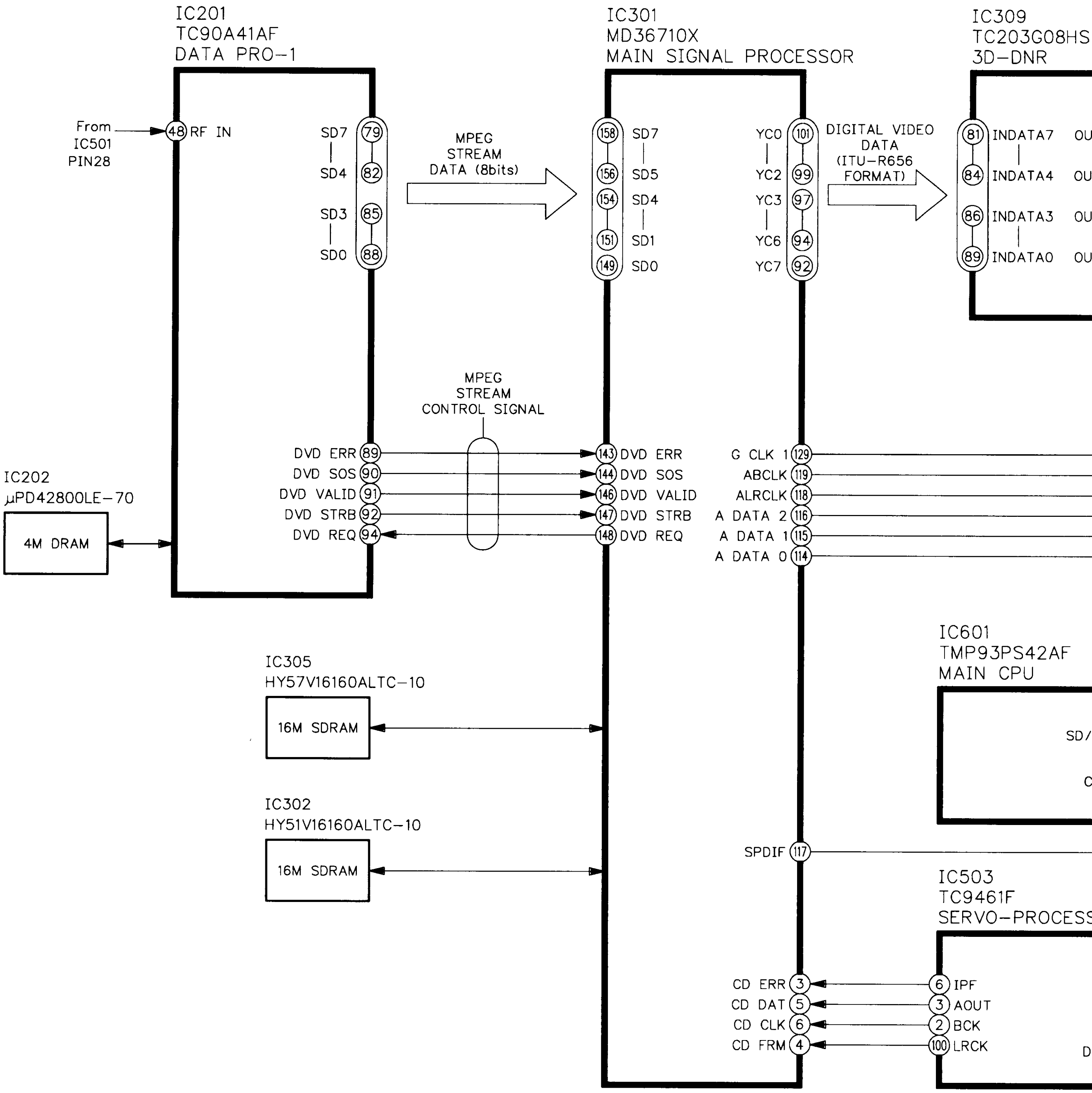

IC201
TC90A41AF
DATA PRO-1
From IC501 PIN28
48 RF IN
79 SD7
82 SD4
85 SD3
88 SD0
MPEG STREAM DATA (8bits)
IC301
MD36710X
MAIN SIGNAL PROCESSOR
158 SD7
156 SD5
154 SD4
151 SD1
149 SD0
YC0 101
YC2 99
YC3 97
YC6 94
YC7 92
DIGITAL VIDEO DATA (ITU-R656 FORMAT)
IC309
TC203G08HS
3D-DNR
81 INDATA7
84 INDATA4
86 INDATA3
89 INDATA0
OUTDATA7 50
OUTDATA4 47
OUTDATA3 45
OUTDATA0 42
2M FIFO
IC310
MSM51V8221A
CN302
R656-7 15
R656-6 16
R656-5 17
R656-4 18
R656-3 19
R656-2 20
R656-1 21
R656-0 22
CNV01
ICV06
ADV7172
VIDEO ENCODER
Cr OUT 24
Cb OUT 25
G OUT 28
C OUT 29
Y OUT 33
CV OUT 35
CNV03
14
10
16
12
8
3
WV03 (FFC)
SUB VIDEO UNIT
OUTPUT UNIT (VIDEO)
CNX01
4 Cr-OUT
8 Cb-OUT
2 G-OUT
6 C-OUT
10 Y-OUT
15 CV-OUT
OUTPUT UNIT (AUDIO)
MPEG STREAM CONTROL SIGNAL
DVD ERR 89
DVD SOS 90
DVD VALID 91
DVD STRB 92
DVD REQ 94
143 DVD ERR
144 DVD SOS
146 DVD VALID
147 DVD STRB
148 DVD REQ
IC202
µPD42800LE-70
4M DRAM
G CLK 1 129
ABCLK 119
ALRCLK 118
A DATA 2 116
A DATA 1 115
A DATA 0 114
CN901
3
6
5
24
23
7
1
W901 (FFC)
CNY01
23 AUDIO MCK
20 BCK
21 LRCK
2 A DATA 2
3 A DATA 1
19 A DATA 0
19 IEC958
IC305
HY57V16160ALTC-10
16M SDRAM
IC302
HY51V16160ALTC-10
16M SDRAM
IC601
TMP93PS42AF
MAIN CPU
SD/CDX 15
CDON 69
IC516
TC7S04F
CD/SDX
IC524
TC7W74F
1/2
IC512
TC7SU04F
IC907
TC7W241FU
IC905
TC7W241FU
IC904
TC7SET08F
SPDIF 117
IC503
TC9461F
SERVO-PROCESSOR
6 IPF
3 AOUT
2 BCK
100 LRCK
XO 74
DOUT 4
CD DATA
CD ERR 3
CD DAT 5
CD CLK 6
CD FRM 4

Fig. 3-4-9

4-5-2. Logical System Block Diagram


IC201
TC90A41AF
DATA PRO-1
From IC501 PIN28
48 RF IN
SD7 79
SD4 82
SD3 85
SD0 88
MPEG STREAM DATA (8bits)
IC301
MD36710X
MAIN SIGNAL PROCESSOR
158 SD7
156 SD5
154 SD4
151 SD1
149 SD0
YC0 101
YC2 99
YC3 97
YC6 94
YC7 92
DIGITAL VIDEO DATA (ITU-R656 FORMAT)
IC309
TC203G08HS
3D-DNR
81 INDATA7
84 INDATA4
86 INDATA3
89 INDATA0
OU
OU
OU
OU
MPEG STREAM CONTROL SIGNAL
DVD ERR 89
DVD SOS 90
DVD VALID 91
DVD STRB 92
DVD REQ 94
143 DVD ERR
144 DVD SOS
146 DVD VALID
147 DVD STRB
148 DVD REQ
G CLK 1 129
ABCLK 119
ALRCLK 118
A DATA 2 116
A DATA 1 115
A DATA 0 114
IC202
µPD42800LE-70
4M DRAM
IC305
HY57V16160ALTC-10
16M SDRAM
IC302
HY51V16160ALTC-10
16M SDRAM
IC601
TMP93PS42AF
MAIN CPU
SD/
C
SPDIF 117
IC503
TC9461F
SERVO-PROCESS
CD ERR 3
CD DAT 5
CD CLK 6
CD FRM 4
6 IPF
3 AOUT
2 BCK
100 LRCK
D

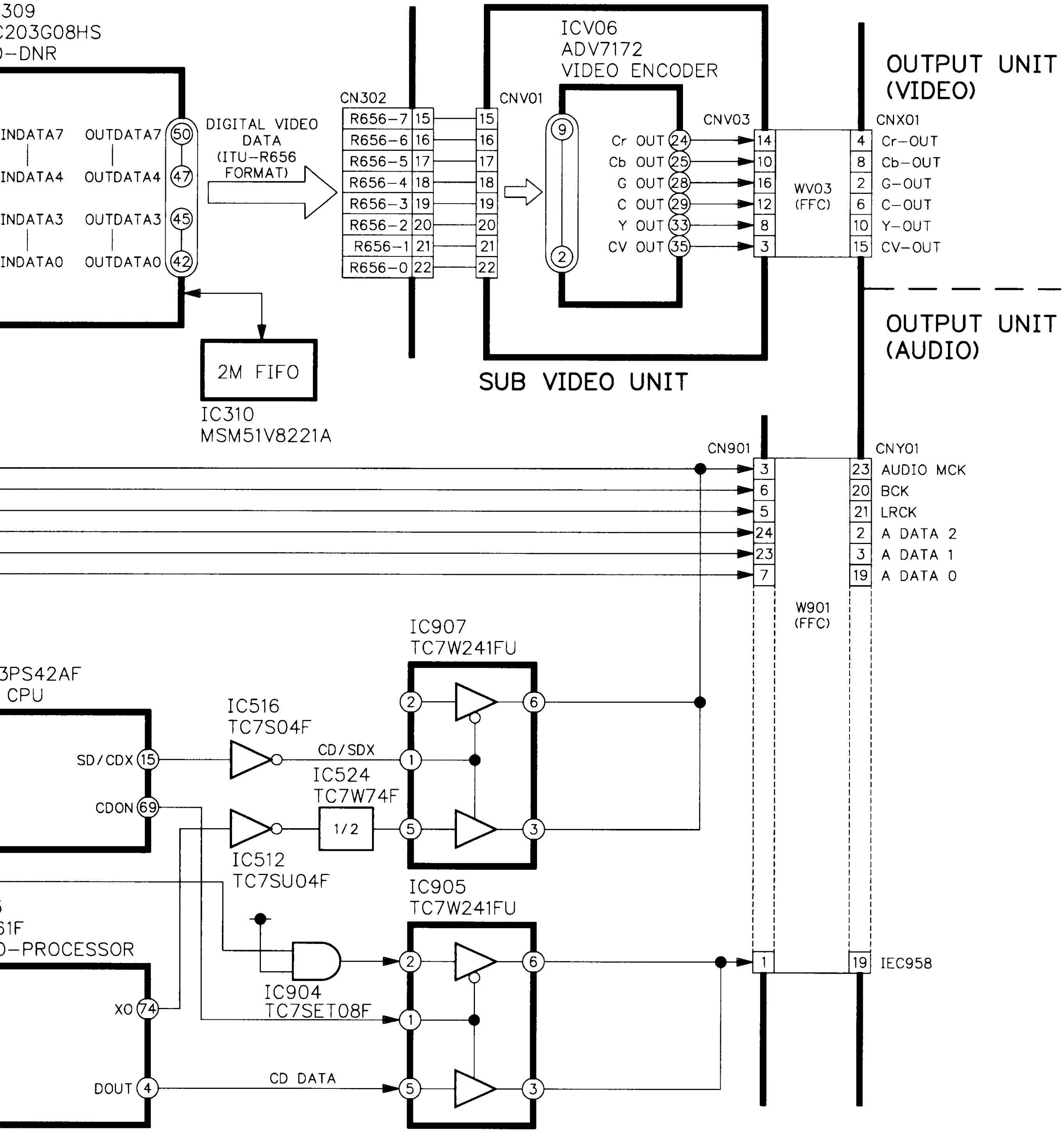

309
C203G08HS
)-DNR
INDATA7
INDATA4
INDATA3
INDATA0
OUTDATA7
OUTDATA4
OUTDATA3
OUTDATA0
50
47
45
42
DIGITAL VIDEO DATA (ITU-R656 FORMAT)
2M FIFO
IC310
MSM51V8221A
CN302
R656-7
R656-6
R656-5
R656-4
R656-3
R656-2
R656-1
R656-0
15
16
17
18
19
20
21
22
CNV01
ICV06
ADV7172
VIDEO ENCODER
9
2
Cr OUT 24
Cb OUT 25
G OUT 28
C OUT 29
Y OUT 33
CV OUT 35
CNV03
14
10
16
12
8
3
WV03 (FFC)
SUB VIDEO UNIT
OUTPUT UNIT (VIDEO)
CNX01
4 Cr-OUT
8 Cb-OUT
2 G-OUT
6 C-OUT
10 Y-OUT
15 CV-OUT
OUTPUT UNIT (AUDIO)
CN901
3
6
5
24
23
7
1
W901 (FFC)
CNY01
23 AUDIO MCK
20 BCK
21 LRCK
2 A DATA 2
3 A DATA 1
19 A DATA 0
19 IEC958
3PS42AF
CPU
SD/CDX 15
CDON 69
IC516
TC7S04F
CD/SDX
IC524
TC7W74F
1/2
IC512
TC7SU04F
IC907
TC7W241FU
2
1
5
6
3
IC905
TC7W241FU
IC904
TC7SET08F
51F
)-PROCESSOR
XO 74
DOUT 4
CD DATA

Fig. 3-4-9

4-6. Output Block Diagram

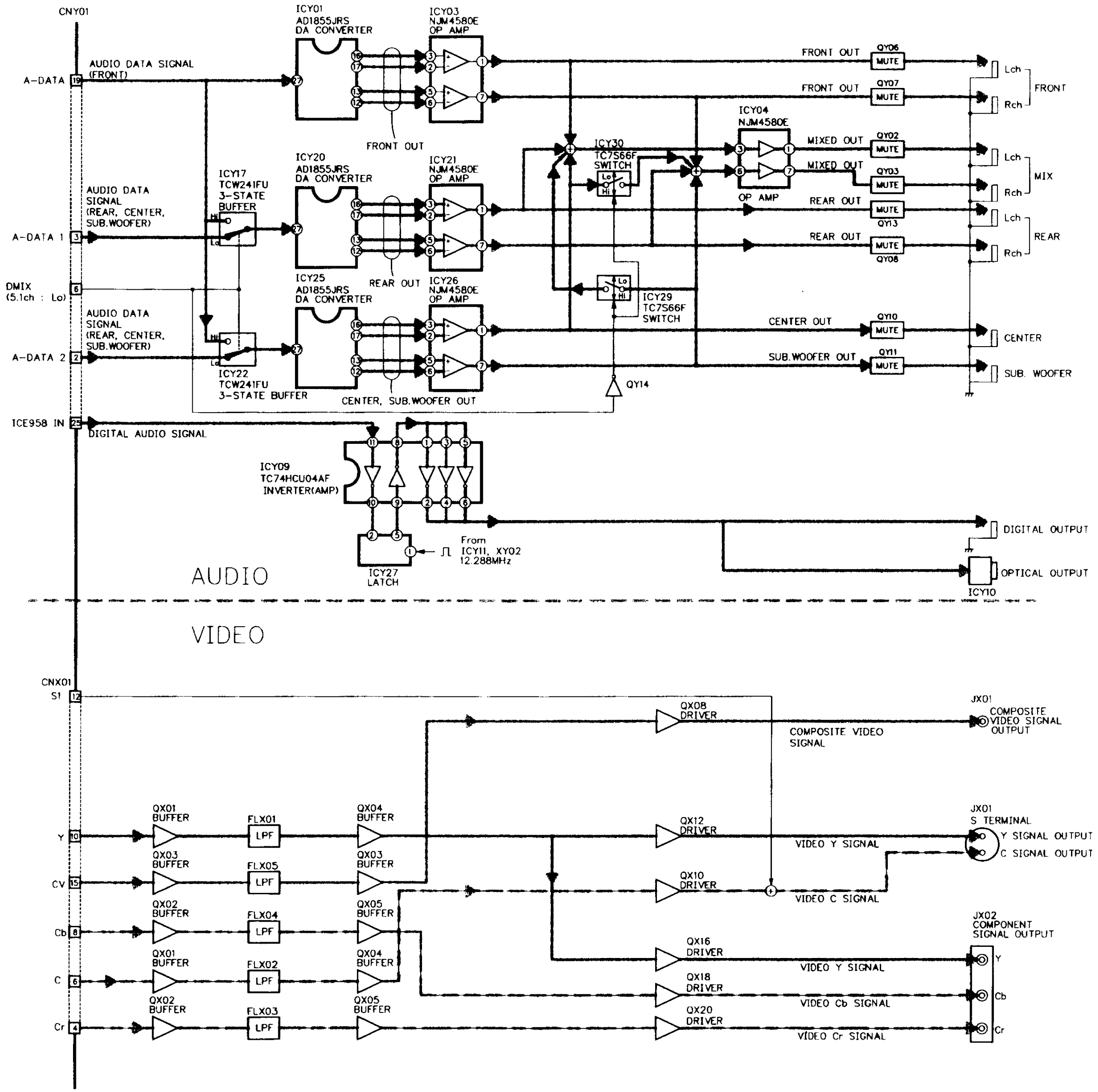
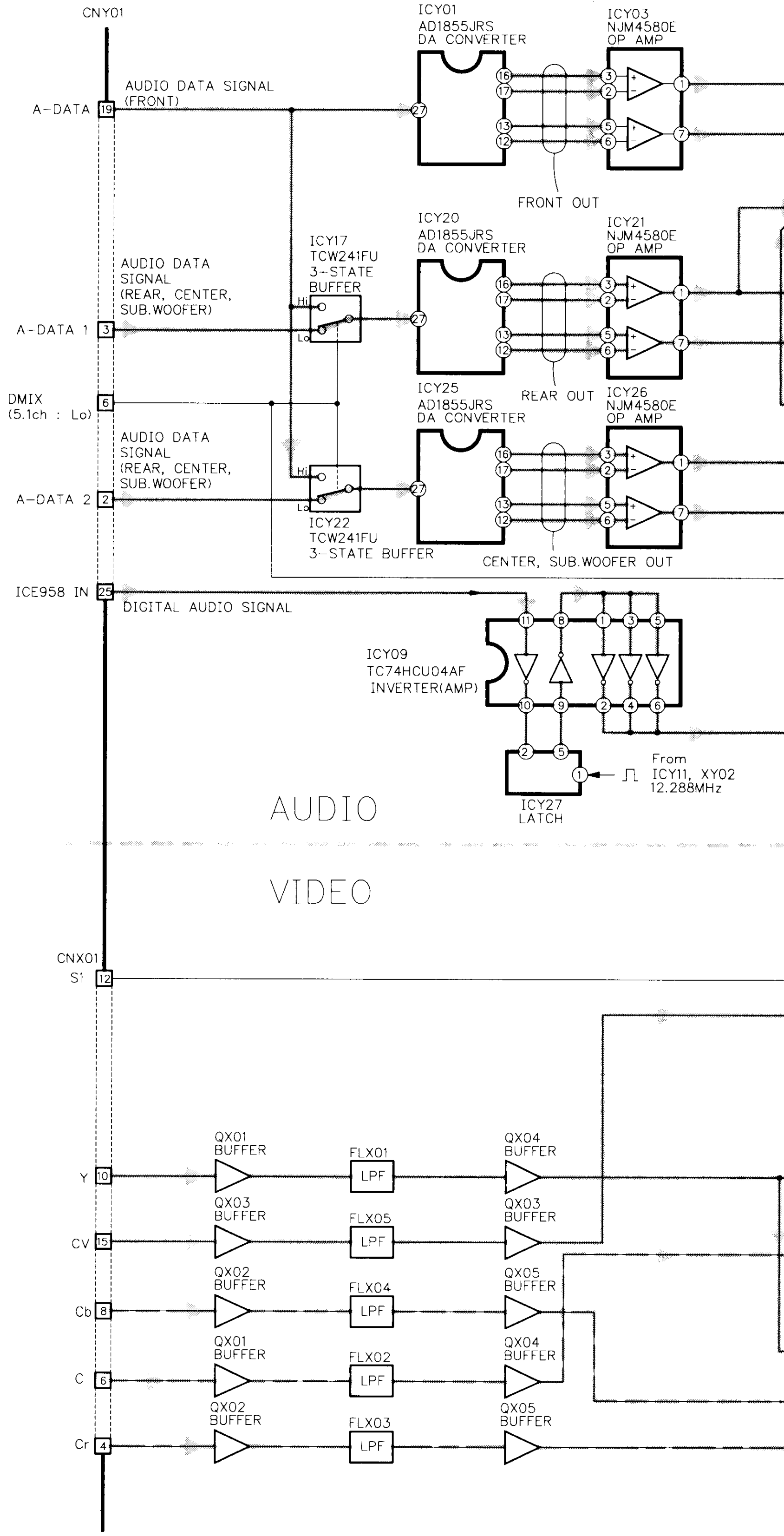

CNY01
A-DATA
AUDIO DATA SIGNAL (FRONT)
A-DATA 1
AUDIO DATA SIGNAL (REAR, CENTER, SUB.WOOFER)
DMIX (5.1ch : Lo)
A-DATA 2
AUDIO DATA SIGNAL (REAR, CENTER, SUB.WOOFER)
ICE958 IN
DIGITAL AUDIO SIGNAL
ICY17 TCW241FU 3-STATE BUFFER
ICY22 TCW241FU 3-STATE BUFFER
ICY01 AD1855JRS DA CONVERTER
ICY20 AD1855JRS DA CONVERTER
ICY25 AD1855JRS DA CONVERTER
ICY03 NJM4580E OP AMP
ICY21 NJM4580E OP AMP
ICY26 NJM4580E OP AMP
FRONT OUT
REAR OUT
CENTER, SUB.WOOFER OUT
ICY30 TC7S66F SWITCH
ICY29 TC7S66F SWITCH
ICY04 NJM4580E OP AMP
QY14
FRONT OUT
FRONT OUT
MIXED OUT
MIXED OUT
REAR OUT
REAR OUT
CENTER OUT
SUB.WOOFER OUT
QY06 MUTE
QY07 MUTE
QY02 MUTE
QY03 MUTE
QY13 MUTE
QY08 MUTE
QY10 MUTE
QY11 MUTE
Lch
Rch
FRONT
Lch
Rch
MIX
Lch
Rch
REAR
CENTER
SUB. WOOFER
ICY09 TC74HCU04AF INVERTER(AMP)
ICY27 LATCH
From ICY11, XY02 12.288MHz
DIGITAL OUTPUT
OPTICAL OUTPUT
ICY10
AUDIO
VIDEO
CNX01
S1
Y
CV
Cb
C
Cr
QX01 BUFFER
QX03 BUFFER
QX02 BUFFER
QX01 BUFFER
QX02 BUFFER
FLX01 LPF
FLX05 LPF
FLX04 LPF
FLX02 LPF
FLX03 LPF
QX04 BUFFER
QX03 BUFFER
QX05 BUFFER
QX04 BUFFER
QX05 BUFFER
QX08 DRIVER
QX12 DRIVER
QX10 DRIVER
QX16 DRIVER
QX18 DRIVER
QX20 DRIVER
COMPOSITE VIDEO SIGNAL
VIDEO Y SIGNAL
VIDEO C SIGNAL
VIDEO Y SIGNAL
VIDEO Cb SIGNAL
VIDEO Cr SIGNAL
JX01 COMPOSITE VIDEO SIGNAL OUTPUT
JX01 S TERMINAL
Y SIGNAL OUTPUT
C SIGNAL OUTPUT
JX02 COMPONENT SIGNAL OUTPUT
Y
Cb
Cr

Fig. 3-4-10

4-6. Output Block Diagram


CNY01
A-DATA 19
AUDIO DATA SIGNAL (FRONT)
ICY01 AD1855JRS DA CONVERTER
ICY03 NJM4580E OP AMP
FRONT OUT
AUDIO DATA SIGNAL (REAR, CENTER, SUB.WOOFER)
A-DATA 1 3
ICY17 TCW241FU 3-STATE BUFFER
Hi
Lo
ICY20 AD1855JRS DA CONVERTER
ICY21 NJM4580E OP AMP
REAR OUT
DMIX (5.1ch : Lo) 6
ICY25 AD1855JRS DA CONVERTER
ICY26 NJM4580E OP AMP
A-DATA 2 2
ICY22 TCW241FU 3-STATE BUFFER
CENTER, SUB.WOOFER OUT
ICE958 IN 25
DIGITAL AUDIO SIGNAL
ICY09 TC74HCU04AF INVERTER(AMP)
ICY27 LATCH
From ICY11, XY02 12.288MHz
AUDIO
VIDEO
CNX01
S1 12
Y 10
CV 15
Cb 8
C 6
Cr 4
QX01 BUFFER
QX03 BUFFER
QX02 BUFFER
QX01 BUFFER
QX02 BUFFER
FLX01 LPF
FLX05 LPF
FLX04 LPF
FLX02 LPF
FLX03 LPF
QX04 BUFFER
QX03 BUFFER
QX05 BUFFER
QX04 BUFFER
QX05 BUFFER

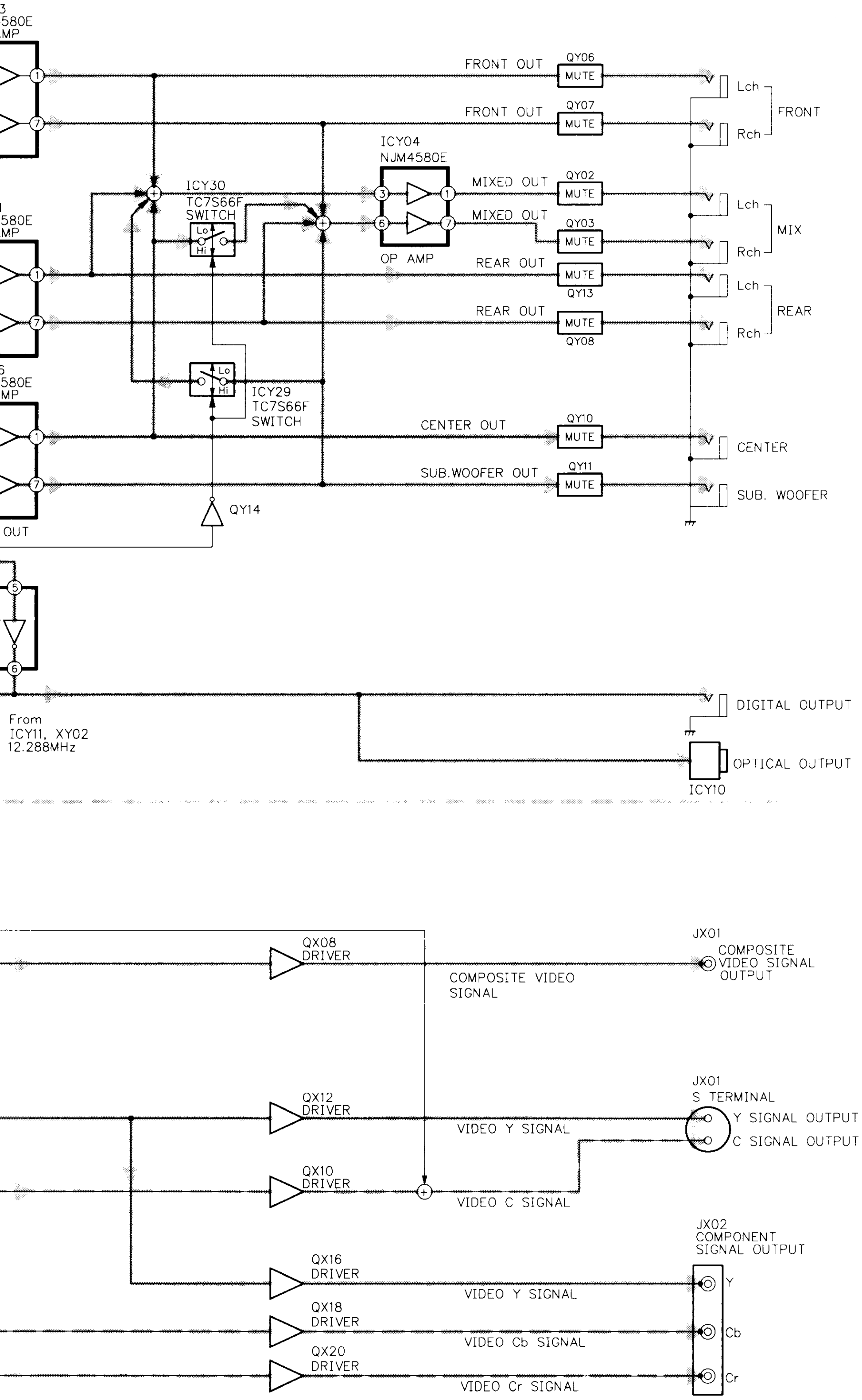
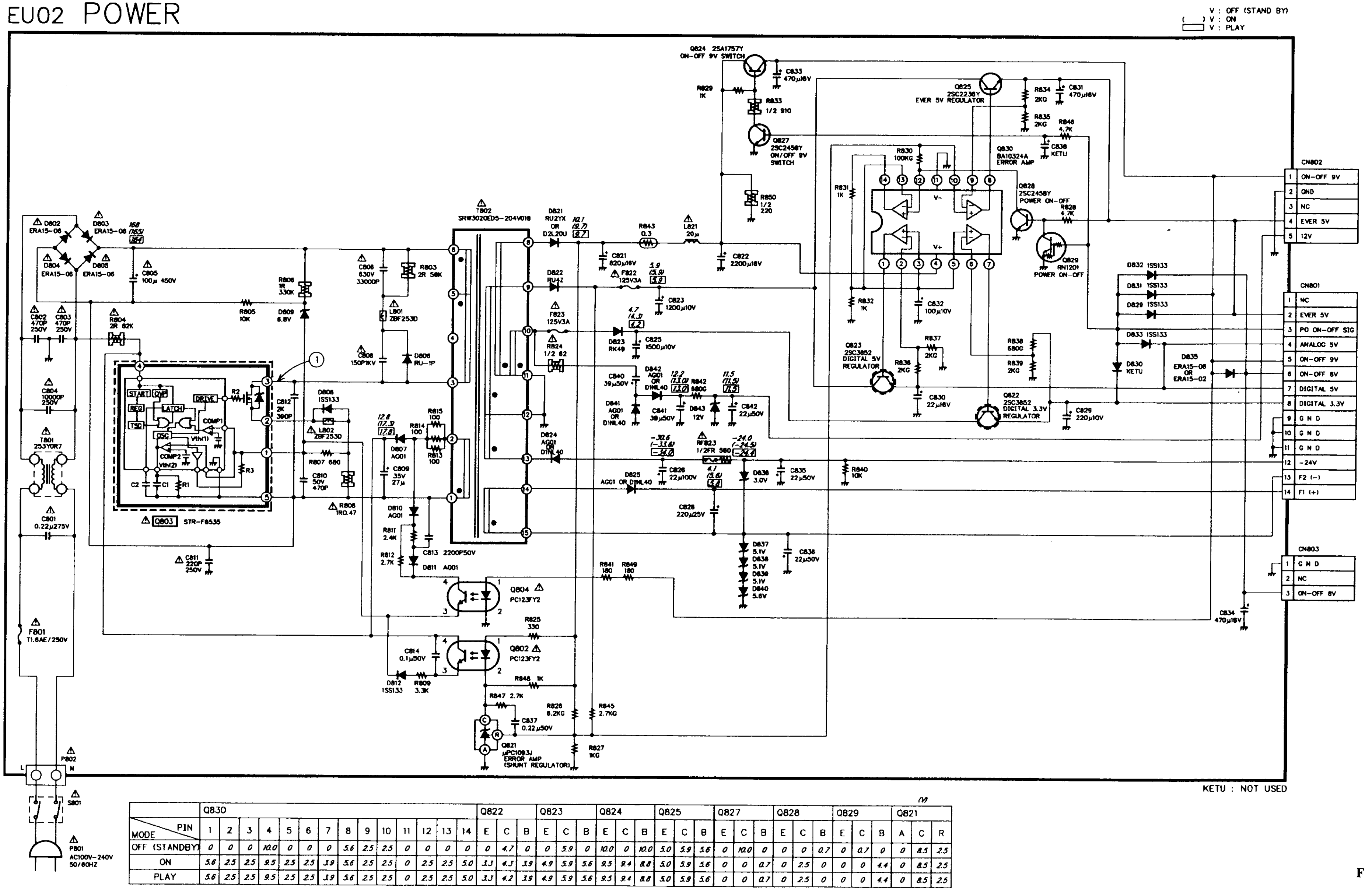

3
580E
MP
FRONT OUT
QY06
MUTE
FRONT OUT
QY07
MUTE
Lch
Rch
FRONT
ICY04
NJM4580E
ICY30
TC7S66F
SWITCH
Lo
Hi
MIXED OUT
QY02
MUTE
MIXED OUT
QY03
MUTE
Lch
Rch
MIX
580E
MP
OP AMP
REAR OUT
MUTE
QY13
Lch
REAR OUT
MUTE
QY08
Rch
REAR
580E
MP
ICY29
TC7S66F
SWITCH
CENTER OUT
QY10
MUTE
CENTER
SUB.WOOFER OUT
QY11
MUTE
SUB. WOOFER
QY14
OUT
DIGITAL OUTPUT
From
ICY11, XY02
12.288MHz
OPTICAL OUTPUT
ICY10
QX08
DRIVER
JX01
COMPOSITE
VIDEO SIGNAL
OUTPUT
COMPOSITE VIDEO
SIGNAL
JX01
S TERMINAL
QX12
DRIVER
Y SIGNAL OUTPUT
VIDEO Y SIGNAL
C SIGNAL OUTPUT
QX10
DRIVER
VIDEO C SIGNAL
JX02
COMPONENT
SIGNAL OUTPUT
QX16
DRIVER
VIDEO Y SIGNAL
Y
QX18
DRIVER
VIDEO Cb SIGNAL
Cb
QX20
DRIVER
VIDEO Cr SIGNAL
Cr

Fig. 3-4-10

5. CIRCUIT DIAGRAMS

5-1. Power Supply Circuit Diagram

EU02 POWER


V : OFF (STAND BY)
( ) V : ON
V : PLAY
D802 ERA15-06
D803 ERA15-06
D804 ERA15-06
D805 ERA15-06
168 (165) 164
C805 100µ 450V
C802 470P 250V
C803 470P 250V
C804 10000P 250V
T801 253Y0R7
C801 0.22µ275V
F801 T1.6AE/250V
P802
L N
S801
P801 AC100V-240V 50/60HZ
R804 2R 82K
R805 10K
R806 1R 330K
D809 6.8V
Q803 STR-F6535
START OVP REG LATCH TSD DRIVE OSC COMP1 COMP2 Vth(1) Vth(2) R1 R2 R3 C1 C2
①
C811 220P 250V
C812 2K 390P
C806 630V 33000P
R803 2R 56K
L801 ZBF253D
C808 150P1KV
D806 RU-1P
D808 1SS133
L802 ZBF253D
R807 680
C810 50V 470P
R808 1R0.47
12.8 (17.3) 17.8
D807 AG01
C809 35V 27µ
R814 100
R815 100
R813 100
D810 AG01
R811 2.4K
R812 2.7K
C813 2200P50V
D811 AG01
T802 SRW3020ED5-204V018
D821 RU2YX OR D2L20U
10.1 (9.7) 9.7
C821 820µ16V
R843 0.3
L821 20µ
C822 2200µ16V
D822 RU4Z
F822 125V3A
5.9 (5.9) 5.9
C823 1200µ10V
F823 125V3A
R824 1/2 82
4.7 (4.3) 4.2
D823 RK49
C825 1500µ10V
C840 39µ50V
D842 AG01 OR D1NL40
D841 AG01 OR D1NL40
12.2 (13.0) 13.0
R842 680G
C841 39µ50V
D843 12V
11.5 (11.5) 11.5
C842 22µ50V
D824 AG01 OR D1NL40
-30.6 (-33.6) -34.0
C826 22µ100V
RF823 1/2FR 560
-24.0 (-24.5) -24.4
D825 AG01 OR D1NL40
4.1 (5.6) 5.6
C828 220µ25V
D836 3.0V
C835 22µ50V
D837 5.1V
D838 5.1V
D839 5.1V
D840 5.6V
C836 22µ50V
R840 10K
R841 180
R849 180
Q804 PC123FY2
Q802 PC123FY2
R825 330
C814 0.1µ50V
D812 1SS133
R809 3.3K
R848 1K
R847 2.7K
C837 0.22µ50V
R826 6.2KG
R845 2.7KG
R827 1KG
Q821 µPC1093J ERROR AMP (SHUNT REGULATOR)
Q824 2SA1757Y ON-OFF 9V SWITCH
C833 470µ16V
R829 1K
R833 1/2 910
Q827 2SC2458Y ON/OFF 9V SWITCH
R850 1/2 220
Q825 2SC2236Y EVER 5V REGULATOR
R834 2KG
C831 470µ16V
R835 2KG
R846 4.7K
C838 KETU
Q830 BA10324A ERROR AMP
R830 100KG
R831 1K
V- V+
Q828 2SC2458Y POWER ON-OFF
R828 4.7K
Q829 RN1201 POWER ON-OFF
R832 1K
C832 100µ10V
R837 2KG
Q823 2SC3852 DIGITAL 5V REGULATOR
R836 2KG
C830 22µ16V
R838 680G
R839 2KG
Q822 2SC3852 DIGITAL 3.3V REGULATOR
C829 220µ10V
D832 1SS133
D831 1SS133
D829 1SS133
D833 1SS133
D830 KETU
D835 ERA15-06 OR ERA15-02
C834 470µ16V
CN802
1 ON-OFF 9V
2 GND
3 NC
4 EVER 5V
5 12V
CN801
1 NC
2 EVER 5V
3 PO ON-OFF SIG
4 ANALOG 5V
5 ON-OFF 9V
6 ON-OFF 8V
7 DIGITAL 5V
8 DIGITAL 3.3V
9 G N D
10 G N D
11 G N D
12 -24V
13 F2 (-)
14 F1 (+)
CN803
1 G N D
2 NC
3 ON-OFF 8V
KETU : NOT USED

(V)

	Q830														Q822			Q823			Q824			Q825			Q827			Q828			Q829			Q821		
MODE \ PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	A	C	R
OFF (STANDBY)	0	0	0	10.0	0	0	0	5.6	2.5	2.5	0	0	0	0	0	4.7	0	0	5.9	0	10.0	0	10.0	5.0	5.9	5.6	0	10.0	0	0	0	0.7	0	0.7	0	0	8.5	2.5
ON	5.6	2.5	2.5	9.5	2.5	2.5	3.9	5.6	2.5	2.5	0	2.5	2.5	5.0	3.3	4.3	3.9	4.9	5.9	5.6	9.5	9.4	8.8	5.0	5.9	5.6	0	0	0.7	0	2.5	0	0	0	4.4	0	8.5	2.5
PLAY	5.6	2.5	2.5	9.5	2.5	2.5	3.9	5.6	2.5	2.5	0	2.5	2.5	5.0	3.3	4.2	3.9	4.9	5.9	5.6	9.5	9.4	8.8	5.0	5.9	5.6	0	0	0.7	0	2.5	0	0	0	4.4	0	8.5	2.5

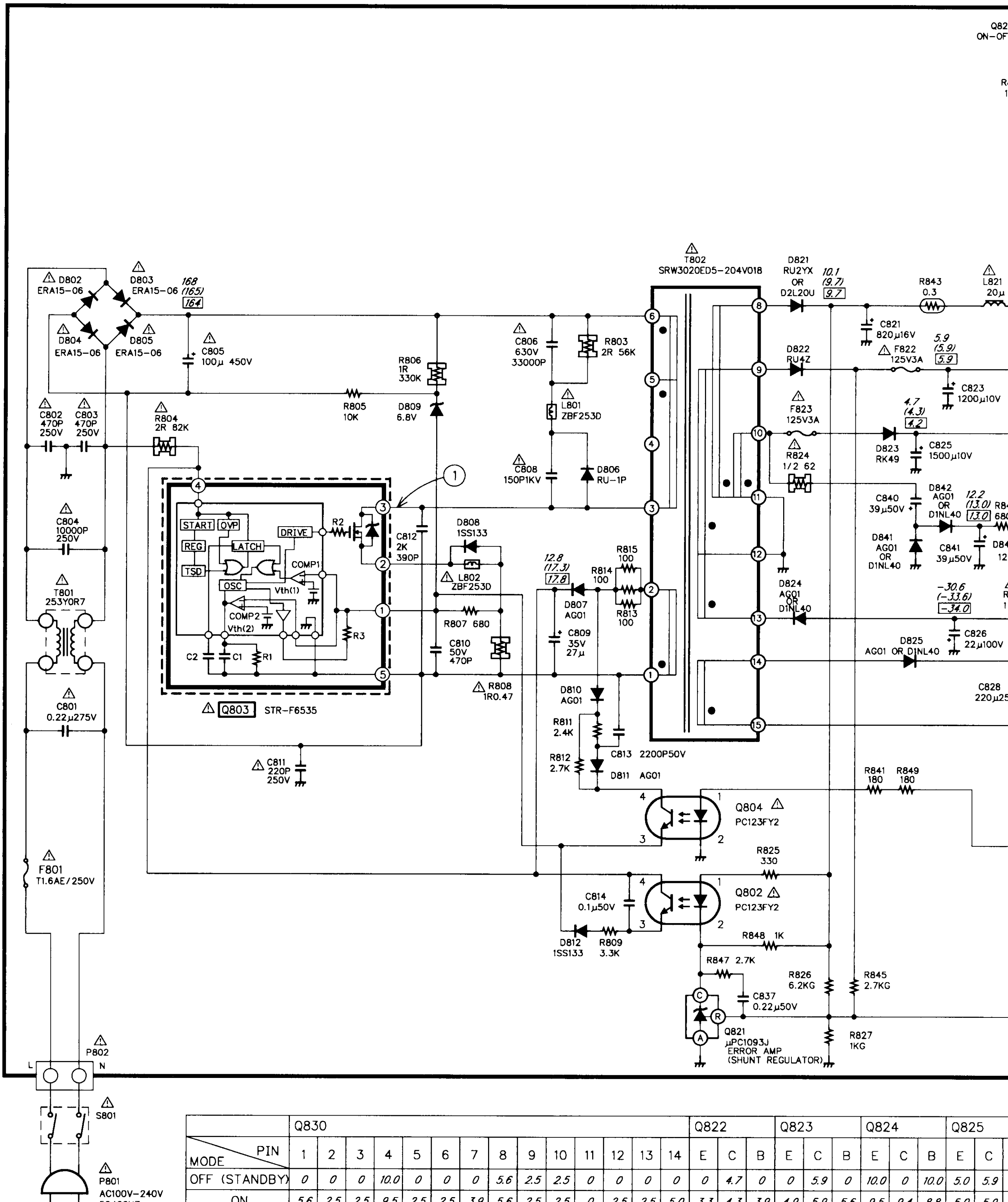
Fig. 3-5-1

1 2 3 4 5

5. CIRCUIT DIAGRAMS

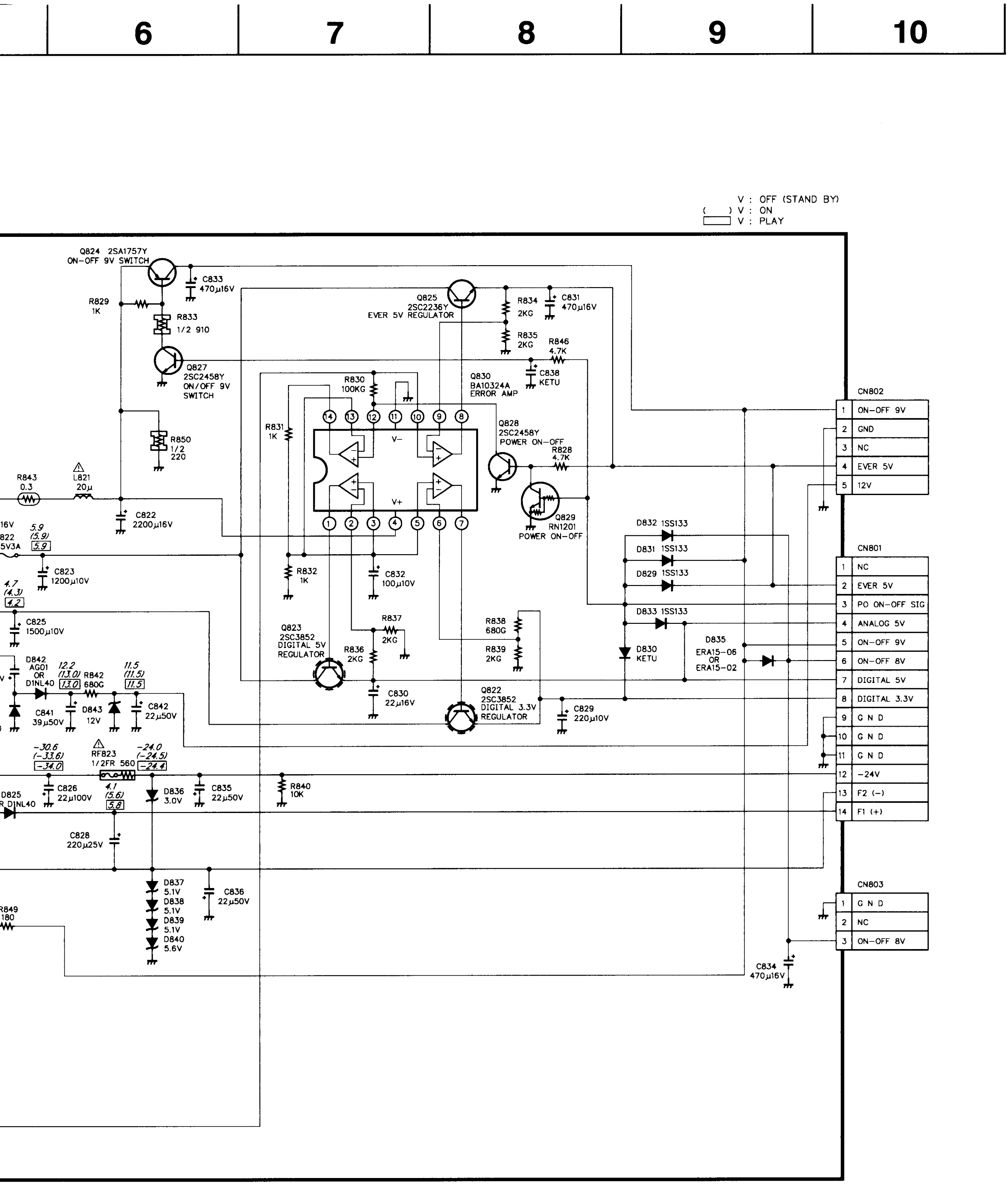
5-1. Power Supply Circuit Diagram

EU02 POWER


A
B
C
D
E
F
G
Q82
ON–OF
T802
SRW3020ED5–204V018
D802
ERA15–06
D803
ERA15–06
168
(165)
164
D804
ERA15–06
D805
ERA15–06
C805
100µ 450V
R806
1R
330K
R805
10K
D809
6.8V
C802
470P
250V
C803
470P
250V
R804
2R 82K
C804
10000P
250V
T801
253Y0R7
C801
0.22µ275V
F801
T1.6AE/250V
START
OVP
REG
LATCH
TSD
DRIVE
R2
COMP1
OSC
Vth(1)
COMP2
Vth(2)
C2
C1
R1
R3
1
Q803
STR–F6535
C811
220P
250V
C812
2K
390P
D808
1SS133
L802
ZBF253D
R807 680
C810
50V
470P
R808
1R0.47
C806
630V
33000P
R803
2R 56K
L801
ZBF253D
C808
150P1KV
D806
RU–1P
12.8
(17.3)
17.8
D807
AG01
R814
100
R815
100
R813
100
C809
35V
27µ
D810
AG01
R811
2.4K
R812
2.7K
C813 2200P50V
D811 AG01
D821
RU2YX
OR
D2L20U
10.1
(9.7)
9.7
C821
820µ16V
R843
0.3
L821
20µ
D822
RU4Z
F822
125V3A
5.9
(5.9)
5.9
C823
1200µ10V
F823
125V3A
4.7
(4.3)
4.2
D823
RK49
C825
1500µ10V
R824
1/2 62
C840
39µ50V
D842
AG01
OR
D1NL40
12.2
(13.0)
13.0
D841
AG01
OR
D1NL40
C841
39µ50V
D824
AG01
OR
D1NL40
−30.6
(−33.6)
−34.0
C826
22µ100V
D825
AG01 OR D1NL40
C828
R841
180
R849
180
Q804
PC123FY2
R825
330
Q802
PC123FY2
C814
0.1µ50V
D812
1SS133
R809
3.3K
R848 1K
R847 2.7K
R826
6.2KG
R845
2.7KG
C837
0.22µ50V
Q821
µPC1093J
ERROR AMP
(SHUNT REGULATOR)
R827
1KG
P802
L
N
S801
P801
AC100V–240V
50/60HZ

	Q830														Q822			Q823			Q824			Q825	
MODE \ PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	E	C	B	E	C	B	E	C	B	E	C
OFF (STANDBY)	0	0	0	10.0	0	0	0	5.6	2.5	2.5	0	0	0	0	0	4.7	0	0	5.9	0	10.0	0	10.0	5.0	5.9
ON	5.6	2.5	2.5	9.5	2.5	2.5	3.9	5.6	2.5	2.5	0	2.5	2.5	5.0	3.3	4.3	3.9	4.9	5.9	5.6	9.5	9.4	8.8	5.0	5.9
PLAY	5.6	2.5	2.5	9.5	2.5	2.5	3.9	5.6	2.5	2.5	0	2.5	2.5	5.0	3.3	4.2	3.9	4.9	5.9	5.6	9.5	9.4	8.8	5.0	5.9

V : OFF (STAND BY)
( ) V : ON
▭ V : PLAY


6
7
8
9
10
Q824 2SA1757Y
ON-OFF 9V SWITCH
C833 470µ16V
R829 1K
R833 1/2 910
Q827 2SC2458Y ON/OFF 9V SWITCH
R850 1/2 220
R843 0.3
L821 20µ
C822 2200µ16V
Q825 2SC2236Y EVER 5V REGULATOR
R834 2KG
C831 470µ16V
R835 2KG
R846 4.7K
C838 KETU
Q830 BA10324A ERROR AMP
R830 100KG
R831 1K
V−
V+
Q828 2SC2458Y POWER ON-OFF
R828 4.7K
Q829 RN1201 POWER ON-OFF
R832 1K
C832 100µ10V
C823 1200µ10V
C825 1500µ10V
Q823 2SC3852 DIGITAL 5V REGULATOR
R837 2KG
R836 2KG
C830 22µ16V
R838 680G
R839 2KG
Q822 2SC3852 DIGITAL 3.3V REGULATOR
C829 220µ10V
D842 AG01 OR D1NL40
R842 680G
C841 39µ50V
D843 12V
C842 22µ50V
RF823 1/2FR 560
C826 22µ100V
D836 3.0V
C835 22µ50V
R840 10K
D825
C828 220µ25V
D837 5.1V
D838 5.1V
D839 5.1V
D840 5.6V
C836 22µ50V
R849 180
D832 1SS133
D831 1SS133
D829 1SS133
D833 1SS133
D830 KETU
D835 ERA15-06 OR ERA15-02
C834 470µ16V
5.9 (5.9) 5.9
4.7 (4.3) 4.2
12.2 (13.0) 13.0
11.5 (11.5) 11.5
-30.6 (-33.6) -34.0
-24.0 (-24.5) -24.4
4.1 (5.6) 5.8
CN802
1 ON-OFF 9V
2 GND
3 NC
4 EVER 5V
5 12V
CN801
1 NC
2 EVER 5V
3 PO ON-OFF SIG
4 ANALOG 5V
5 ON-OFF 9V
6 ON-OFF 8V
7 DIGITAL 5V
8 DIGITAL 3.3V
9 G N D
10 G N D
11 G N D
12 −24V
13 F2 (−)
14 F1 (+)
CN803
1 G N D
2 NC
3 ON-OFF 8V

KETU : NOT USED

(V)

		Q825			Q827			Q828			Q829			Q821		
C	B	E	C	B	E	C	B	E	C	B	E	C	B	A	C	R
0	10.0	5.0	5.9	5.6	0	10.0	0	0	0	0.7	0	0.7	0	0	8.5	2.5
9.4	8.8	5.0	5.9	5.6	0	0	0.7	0	2.5	0	0	0	4.4	0	8.5	2.5
9.4	8.8	5.0	5.9	5.6	0	0	0.7	0	2.5	0	0	0	4.4	0	8.5	2.5

Fig. 3-5-1

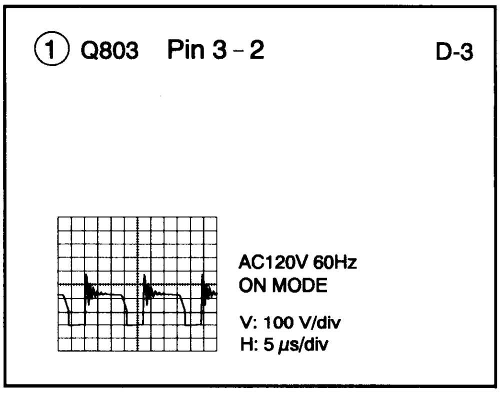
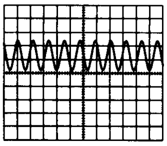


Fig. 3-5-2

Part No.	Location
C801	E1
C802	C1
C803	C2
C804	D1
C805	C2
C806	C4
C808	D4
C809	E4
C810	E3
C811	E2
C812	D3
C813	E4
C814	F4
C821	C5
C822	C6
C823	C6
C825	D5
C826	E6
C828	E6
C829	D8
C830	D7
C831	B8
C832	C7
C833	B6
C834	F9
C835	E6
C836	E7
C837	F5
C838	B8
C840	D5
C841	D6
C842	D6
CN801	C10
CN802	B10
CN803	E10
D802	C1
D803	C2
D804	C1
D805	C2
D806	D4
D807	D4
D808	D3
D809	C3
D810	E4
D811	E4
D812	F4
D821	C5
D822	C5
D823	D5
D824	D5
D825	E5
D829	C9
D830	D9
D831	C9
D832	C9
D833	D9
D835	D9
D836	E6
D837	E6
D838	E6
D839	E6
D840	E6
D841	D5
D842	D5
D843	D6
F801	F1
F822	C5
F823	C5
L801	C4
L802	D3
L821	C6
P801	G2
P802	G2
Q802	F5
Q803	E2
Q804	E5
Q821	F5
Q822	D8
Q823	D7
Q824	B6
Q825	B8
Q827	B6
Q828	C8
Q829	C8
Q830	B8
R803	C4
R804	D2
R805	C3
R806	C3
R807	E3
R808	E3
R809	F4
R811	E4
R812	E4
R813	D4
R814	D4
R815	D4
R824	D5
R825	F5
R826	F5
R827	G5
R828	C8
R829	B6
R830	B7
R831	C7
R832	C7
R833	B6
R834	B8
R835	B8
R836	D7
R837	D7
R838	D8
R839	D8
R840	E7
R841	E5
R842	D6
R843	C5
R845	F5
R846	B8
R847	F4
R848	F5
R849	E5
R850	C6
RF823	D6
S801	G2
T801	D1
T802	C4

5-2. Front Display Circuit Diagram

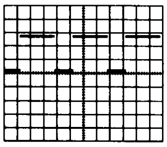
① IC101, Pin ⑭ D-3



X-OUT

V: 2 V/div
H: 100 ns/div

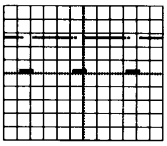
② IC101, Pin ㉓ E-4



STB

V: 2 V/div
H: 5 ms/div

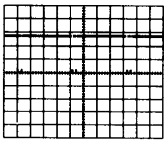
③ IC101, Pin ㉔ E-4



SI

V: 2 V/div
H: 5 ms/div

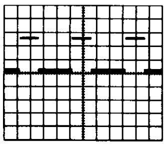
④ IC101, Pin ㉕ E-4



SO

V: 2 V/div
H: 5 ms/div

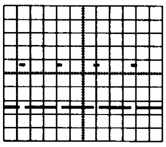
⑤ IC101, Pin ㉖ E-4



SCK

V: 2 V/div
H: 5 ms/div

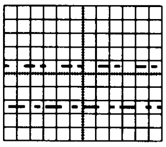
⑥ IC101, Pin ㉞ E-5



G1

V: 10 V/div
H: 5 ms/div

⑦ IC101, Pin ㉟ E-5

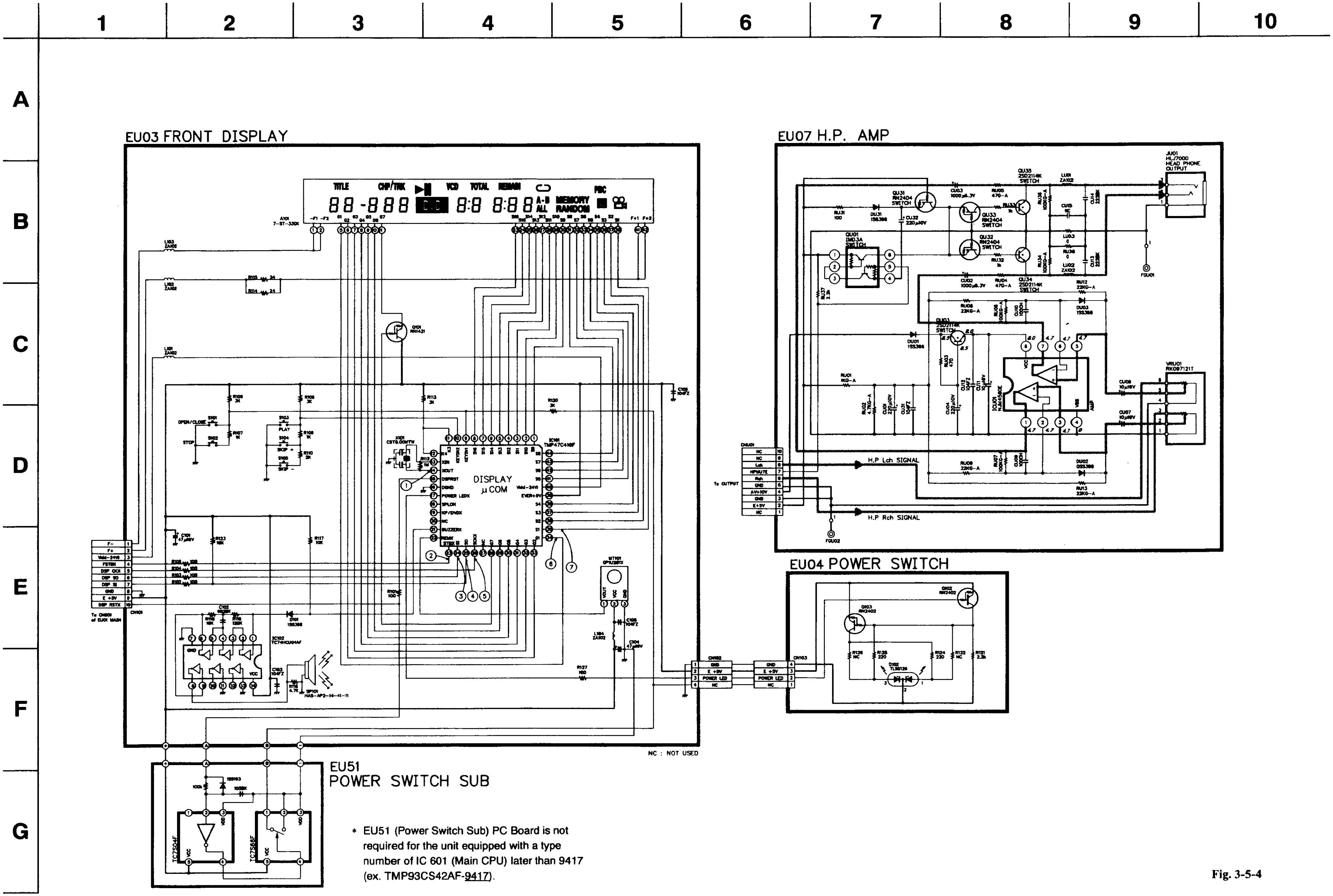


S1

V: 10 V/div
H: 5 ms/div

Fig. 3-5-3

Part No.	Location	Part No.	Location
A101	B2	R101	E3
C101	E2	R102	E2
C102	E2	R103	E2
C103	F2	R104	E2
C104	E5	R105	E2
C105	E5	R106	C2
C106	C6	R107	D2
CN101	E1	R108	C3
CN102	F6	R109	D3
CN103	F6	R110	D3
CNU01	D6	R112	D4
CU01	D7	R113	C4
CU02	B8	R114	C2
CU03	B8	R115	B2
CU04	D8	R116	E2
CU07	D9	R117	E3
CU08	C9	R118	F2
CU09	D8	R119	E2
CU10	C8	R120	C5
CU11	C8	R121	F8
CU12	C8	R122	F8
CU13	B9	R123	E2
CU14	B9	R124	F7
CU15	B8	R125	F7
CU31	D7	R126	F7
CU32	B7	R127	F5
D101	E3	RU01	C7
D102	F7	RU02	D7
DU01	C7	RU03	C8
DU02	D9	RU04	B8
DU03	C9	RU05	B8
DU31	B7	RU06	C8
FGU01	B9	RU07	D8
FGU02	E7	RU08	C8
IC101	D5	RU09	D8
IC102	E2	RU12	B9
ICU01	C8	RU13	D9
JU01	A9	RU31	B7
L101	C2	RU32	B8
L102	C2	RU33	B8
L103	B2	RU34	B8
L104	E5	RU35	B8
LU01	B8	RU36	B8
LU02	B8	RU37	C7
LU03	B8	S101	D2
MT101	E5	S102	D2
Q101	C3	S103	D2
Q102	E8	S104	D2
Q103	E7	S105	D2
QU01	B7	SP101	F3
QU03	C8	VRU01	C9
QU31	B7	X101	D3
QU32	B8		
QU33	B8		
QU34	B8		
QU35	B8		

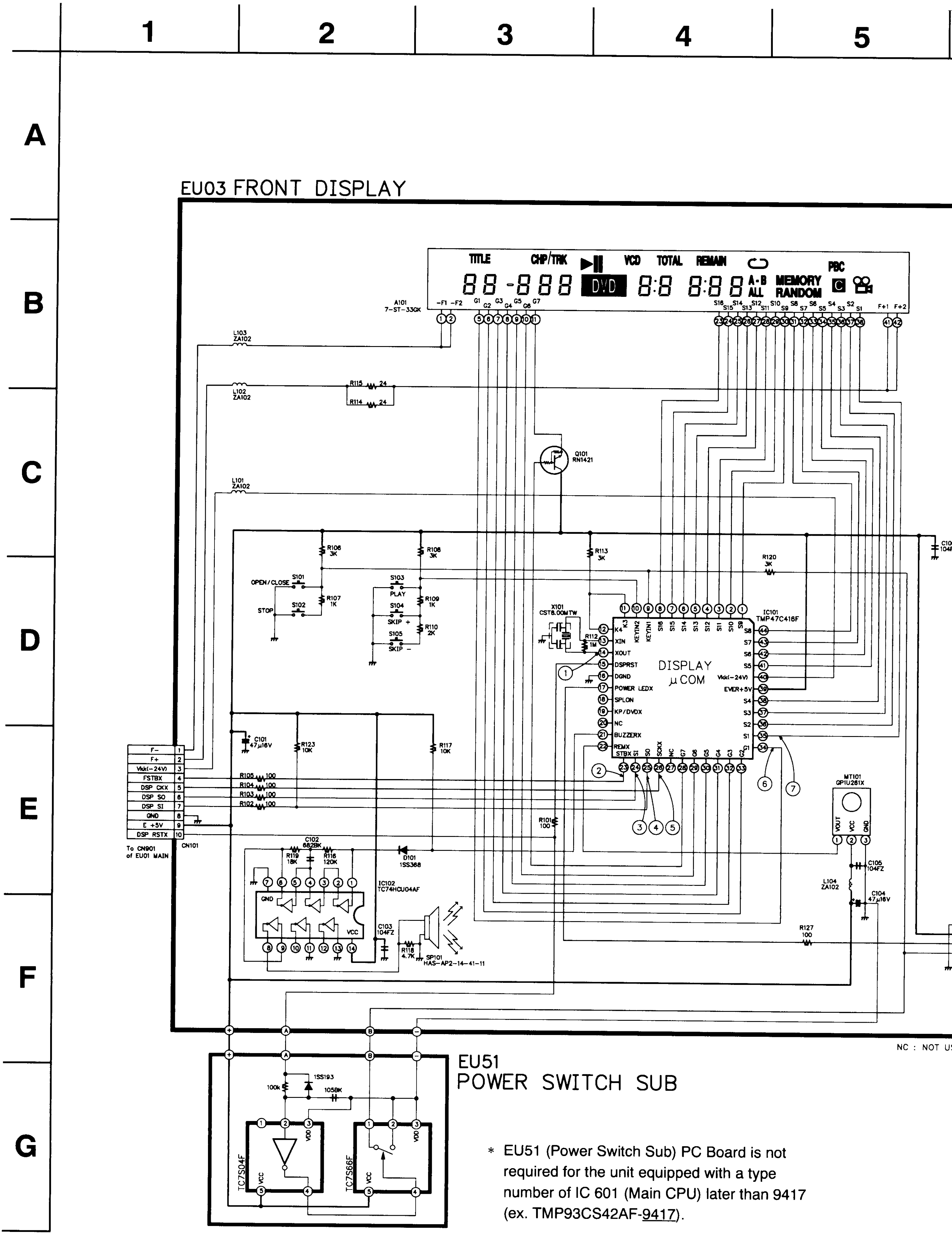


EU03 FRONT DISPLAY
EU07 H.P. AMP
EU04 POWER SWITCH
EU51
POWER SWITCH SUB
DISPLAY
µCOM
IC101
TMP47C416F
X101
CST8.00MTW
TITLE
CHP/TRK
VCD
TOTAL
REMAIN
A-B
ALL
MEMORY
RANDOM
PBC
CN101
F-
F+
Vdd(-24V)
FSTBX
DSP CKX
DSP SO
DSP SI
GND
E +5V
DSP RSTX
To CN801
of EU01 MAIN
OPEN/CLOSE
STOP
PLAY
SKIP +
SKIP -
SP101
HAS-AP2-14-41-11
IC102
TC74HCU04AF
Q101
RN1421
MT101
GP1U28YX
VOUT
VCC
GND
CN102
CN103
POWER LED
NC
CNU01
Lch
HPMUTE
Rch
AV+10V
E+5V
To OUTPUT
H.P Lch SIGNAL
H.P Rch SIGNAL
FQU01
FQU02
JU01
HLJ7000
HEAD PHONE
OUTPUT
VRU01
RK09712IT
ICU01
NJM4580E
AMP
QU01
IMD3A
SWITCH
QU31
RN2404
SWITCH
QU32
RN2404
SWITCH
QU33
RN2404
SWITCH
QU34
2SD2114K
SWITCH
QU35
2SD2114K
SWITCH
Q102
RN2402
Q103
RN2402
D102
TLSG126
TC7S04F
TC7S66F
1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
G

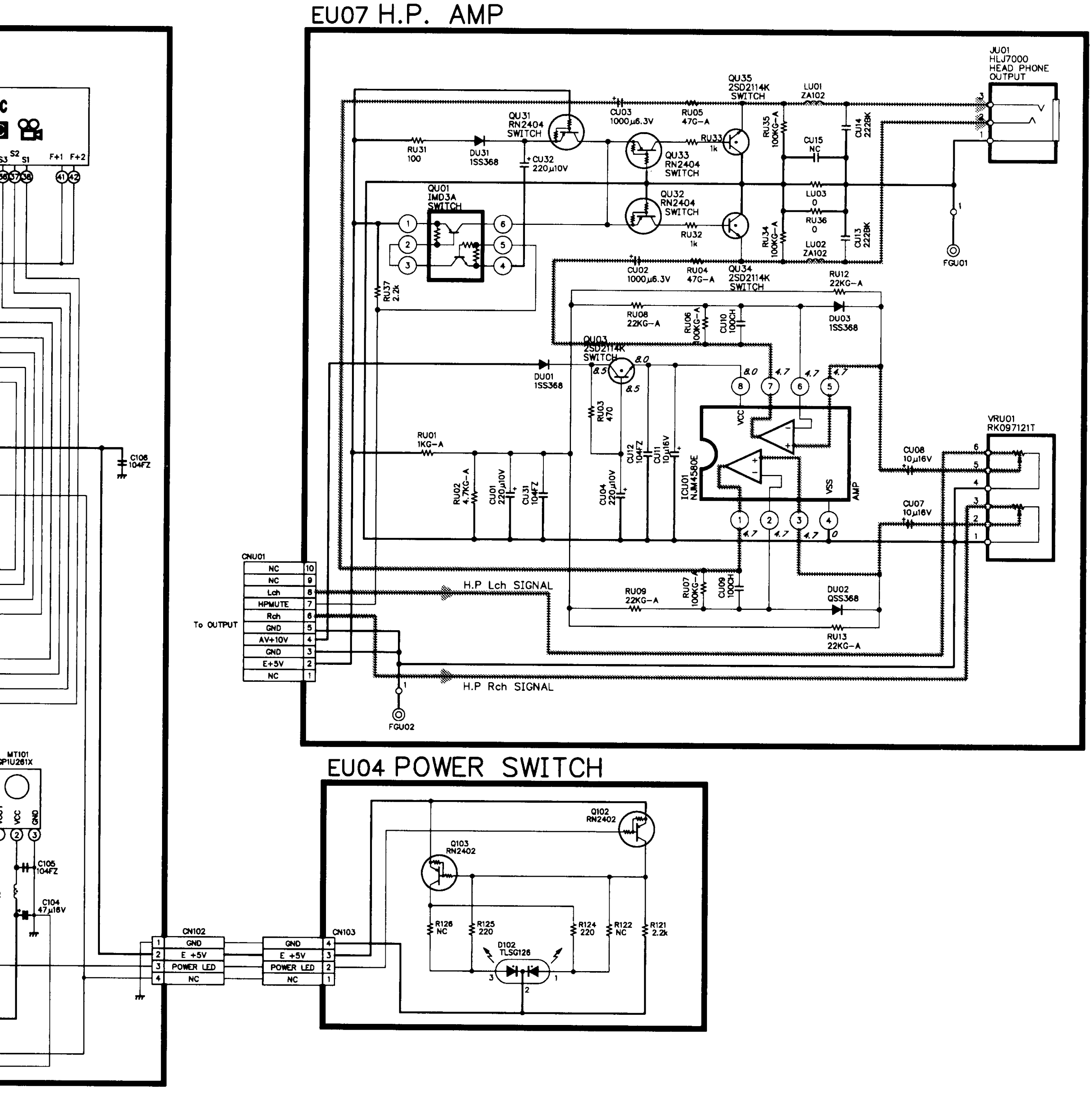
NC : NOT USED

* EU51 (Power Switch Sub) PC Board is not required for the unit equipped with a type number of IC 601 (Main CPU) later than 9417 (ex. TMP93CS42AF-9417).

Fig. 3-5-4


1
2
3
4
5
A
B
C
D
E
F
G
EU03 FRONT DISPLAY
TITLE
CHP/TRK
VCD
TOTAL
REMAIN
PBC
A-B
ALL
MEMORY
RANDOM
DVD
A101
7-ST-33GK
-F1 -F2
G1 G2 G3 G4 G5 G6 G7
S16 S15 S14 S13 S12 S11 S10 S9 S8 S7 S6 S5 S4 S3 S2 S1
F+1 F+2
L103
ZA102
L102
ZA102
L101
ZA102
R115 24
R114 24
Q101
RN1421
R106
3K
R108
3K
R113
3K
R120
3K
OPEN/CLOSE
S101
R107
1K
STOP
S102
S103
PLAY
R109
1K
S104
SKIP +
R110
2K
S105
SKIP −
X101
CST8.00MTW
R112
1M
IC101
TMP47C416F
K4
XIN
XOUT
DSPRST
DGND
POWER LEDX
SPLON
KP/DVDX
NC
BUZZERX
REMX
STBX
K3
KEYIN2
KEYIN1
DISPLAY
µ COM
Vkk(−24V)
EVER+5V
C101
47µ16V
R123
10K
R117
10K
F−
F+
Vkk(−24V)
FSTBX
DSP CKX
DSP SO
DSP SI
GND
E +5V
DSP RSTX
To CN901
of EU01 MAIN
CN101
R105 100
R104 100
R103 100
R102 100
R101
100
C102
682BK
R119
18K
R116
120K
D101
1SS368
IC102
TC74HCU04AF
GND
VCC
C103
104FZ
R118
4.7K
SP101
HAS-AP2-14-41-11
MT101
GP1U281X
VOUT
VCC
GND
C105
104FZ
L104
ZA102
C104
47µ16V
R127
100
NC : NOT U
EU51
POWER SWITCH SUB
1SS193
100k
105BK
TC7S04F
TC7S66F
VDD
VCC
+
A
B
−

* EU51 (Power Switch Sub) PC Board is not required for the unit equipped with a type number of IC 601 (Main CPU) later than 9417 (ex. TMP93CS42AF-9417).


EU07 H.P. AMP
JU01
HLJ7000
HEAD PHONE
OUTPUT
QU35
2SD2114K
SWITCH
LU01
ZA102
QU31
RN2404
SWITCH
CU03
1000µ6.3V
RU05
47G-A
RU31
100
DU31
1SS368
CU32
220µ10V
RU33
1k
QU33
RN2404
SWITCH
RU35
100KG-A
CU15
NC
CU14
222BK
QU01
IMD3A
SWITCH
QU32
RN2404
SWITCH
LU03
0
RU36
0
RU32
1k
RU34
100KG-A
LU02
ZA102
CU13
222BK
FGU01
RU37
2.2k
CU02
1000µ6.3V
RU04
47G-A
QU34
2SD2114K
SWITCH
RU12
22KG-A
RU08
22KG-A
RU06
100KG-A
CU10
100CH
DU03
1SS368
QU03
2SD2114K
SWITCH
DU01
1SS368
RU03
470
8.0
8.5
4.7
0
RU01
1KG-A
RU02
4.7KG-A
CU01
220µ10V
CU31
104FZ
CU04
220µ10V
CU12
104FZ
CU11
10µ16V
ICU01
NJM4580E
VCC
VSS
AMP
VRU01
RK097121T
CU08
10µ16V
CU07
10µ16V
CNU01
NC 10
NC 9
Lch 8
HPMUTE 7
Rch 6
GND 5
AV+10V 4
GND 3
E+5V 2
NC 1
To OUTPUT
H.P Lch SIGNAL
H.P Rch SIGNAL
RU09
22KG-A
RU07
100KG-A
CU09
100CH
DU02
QSS368
RU13
22KG-A
FGU02
EU04 POWER SWITCH
Q102
RN2402
Q103
RN2402
R126
NC
R125
220
R124
220
R122
NC
R121
2.2k
D102
TLSG126
CN102
1 GND
2 E +5V
3 POWER LED
4 NC
CN103
GND 4
E +5V 3
POWER LED 2
NC 1
S3 S2 S1
F+1 F+2
C106
104FZ
MT101
P1U261X
VCC
GND
C105
104FZ
C104
47µ16V

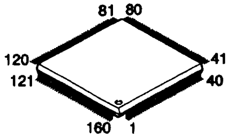
NC : NOT USED

Fig. 3-5-4

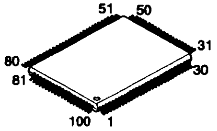
5-3. Main Circuit Diagram

5-3-1. Main ICs Information

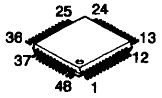
MD-36710



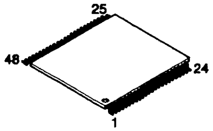
TC203G08AF



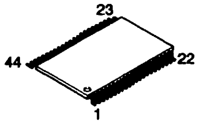
BU6481KV



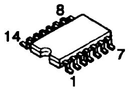
LH28F800SGE



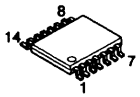
W26010AT



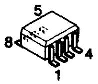
TC74HC08AF



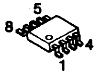
TC74HC4066AFT



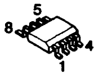
TC7W66FU



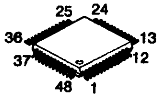
NJU6321PE



AD8561



ADV7172KST



Main ICs Function

Table 3-5-1

Ref. No.	IC Name	Function	Detail
IC501	TA1254AF	RF-AMP	Equalization of playback RF signal and generates error detection signal necessary for each servo.
IC201	TC90A41AF	Data Processor	Performs error correction of DVD system, 8/16 demodulation, etc. and performs playback signal process and spindle servo control at playback of DVD.
IC505	BA5917FP	PU & MOTOR DRIVER	Actuator of CD system, 4ch BTL driver for motor drive.
IC509	RT2124AFS	SPEED DET	Speed detection of pickup head.
IC503	TC9461F	SERVO & CD-DA Processor	Synchronizing separation protection and interpolation in CD system, EFM demodulation, error correction and compensation, microprocessor interface, digital equalizer and servo control circuit
IC601	TMP93CS42AF	Main Microprocessor	System control of all circuits .
IC613	S24C04AFS	EE-PROM	Setup default, memorization of specification setting.
IC615	LH28F800SGE	Flash ROM	Memorization for firmware.
IC301	MD36710X	AV Decorder	Decode, MPEG-2 Decode, audio decode, sub-picture decode, OSD
ICV06	ADV7172KST	Video Encoder	D/A converter built-in. Digital video signal is encoded to analog video signal.
IC309	TC203G08AF	3D DNR	3 Dimension Digital Noise Reduction

New Function

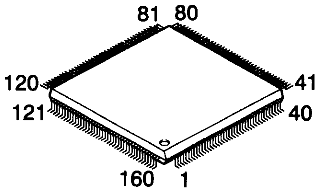
Table 3-5-2

Item	Contents	Main operation IC
Change setup in playback	Enable to change contents of setup menu during playback without stop.	IC601: TMP93CS42AF
Bit rate display	Indicates transfer rate with OSD during normal playback DVD disc (except during different speed special playback such as SLOW, PAUSE, STILL, FWD/REV, etc.).	IC601: TMP93CS42AF IC301: MD36710X
DTS bitstream output	When audio coding mode selects stream of DTS, develops it from digital output. (Analog output is muted.)	IC601: TMP93CS42AF IC301: MD36710X
Audio output select	Selects the optimum processes (downsampling, downmix) according to the connections of audio out (analog connection, PCM stereo equipment connection to digital, decoder equipment connection to digital).	IC601: TMP93CS42AF IC301: MD36710X
3D DNR	Reducts video signal noise.	IC309: TC203G08AF
6 ch discrete audio output	Enable to decode discrete audio output of Dolby Digital 5.1 ch and Dolby Pro Logic	IC301: MD36710X IC601: TMP93CS42AF
Custom picture quality setting	Adjusts picture quality and memorises 3 types of the setting.	ICV06: ADV7172KST IC601: TMP93CS42AF

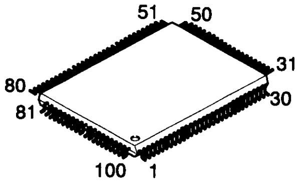
5-3. Main Circuit Diagram

5-3-1. Main ICs Information

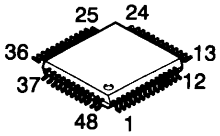
MD-36710


81
80
120
41
121
40
160
1

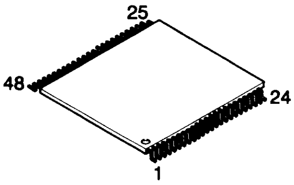
TC203G08AF


51
50
31
80
81
30
100
1

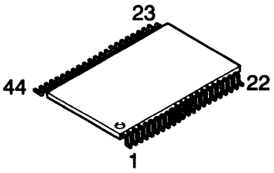
BU6481KV


25
24
36
13
37
12
48
1

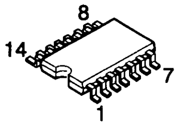
LH28F800SGE



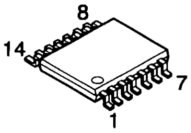
W26010AT



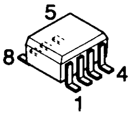
TC74HC08AF



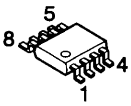
TC74HC4066AFT



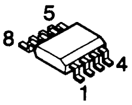
TC7W66FU



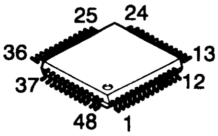
NJU6321PE



AD8561



ADV7172KST


25
24
36
13
37
12
48
1

Main ICs Function

Table 3-5-1

Ref. No.	IC Name	Function	Detail
IC501	TA1254AF	RF-AMP	Equalization of playback RF signal and generates error detection signal necessary for each servo.
IC201	TC90A41AF	Data Processor	Performs error correction of DVD system, 8/16 demodulation, etc. and performs playback signal process and spindle servo control at playback of DVD.
IC505	BA5917FP	PU & MOTOR DRIVER	Actuator of CD system, 4ch BTL driver for motor drive.
IC509	RT2124AFS	SPEED DET	Speed detection of pickup head.
IC503	TC9461F	SERVO & CD-DA Processor	Synchronizing separation protection and interpolation in CD system, EFM demodulation, error correction and compensation, microprocessor interface, digital equalizer and servo control circuit
IC601	TMP93CS42AF	Main Microprocessor	System control of all circuits .
IC613	S24C04AFS	EE-PROM	Setup default, memorization of specification setting.
IC615	LH28F800SGE	Flash ROM	Memorization for firmware.
IC301	MD36710X	AV Decorder	Decode, MPEG-2 Decode, audio decode, sub-picture decode, OSD
ICV06	ADV7172KST	Video Encoder	D/A converter built-in. Digital video signal is encoded to analog video signal.
IC309	TC203G08AF	3D DNR	3 Dimension Digital Noise Reduction

New Function

Table 3-5-2

Item	Contents	Main operation IC
Change setup in playback	Enable to change contents of setup menu during playback without stop.	IC601: TMP93CS42AF
Bit rate display	Indicates transfer rate with OSD during normal playback DVD disc (except during different speed special playback such as SLOW, PAUSE, STILL, FWD/REV, etc.).	IC601: TMP93CS42AF IC301: MD36710X
DTS bitstream output	When audio coding mode selects stream of DTS, develops it from digital output. (Analog output is muted.)	IC601: TMP93CS42AF IC301: MD36710X
Audio output select	Selects the optimum processes (downsampling, downmix) according to the connections of audio out (analog connection, PCM stereo equipment connection to digital, decoder equipment connection to digital).	IC601: TMP93CS42AF IC301: MD36710X
3D DNR	Reducts video signal noise.	IC309: TC203G08AF
6 ch discrete audio output	Enable to decode discrete audio output of Dolby Digital 5.1 ch and Dolby Pro Logic	IC301: MD36710X IC601: TMP93CS42AF
Custom picture quality setting	Adjusts picture quality and memorises 3 types of the setting.	ICV06: ADV7172KST IC601: TMP93CS42AF

Table 3-5-3 ADV7172KST (1/2)

Pin No.	Name	Function
1 11 19 27 30 32 34 46	V_{AA}	Power Supply
2 | 9	P0-P7	8-Bit 4:2:2 Multiplexed YCrCb Pixel Port (P7-P0) P0 represents the LSB.
10	CSO_HSO	Dual function CSYNC and HSYNC TTL Output Sync Signal.
12 13 18 26 31 47	GND	Ground Pin.
14	HSYNC	HSYNC (Modes 1 and 2) Control Signal. This pin may be configured to output (Master Mode) or accept (Slave Mode) Sync signals.
15	FIELD/ VSYNC	Dual Function FIELD (Mode 1) and VSYNC (Mode 2) Control Signal. This pin may be configured to output (Master Mode) or accept (Slave Mode) these control signals.
16	BLANK	Video Blanking Control Signal. The pixel inputs are ignored when this is logic level "0". This signal is optional.
17	ALSB	TTL Address Input. This signal set up the LSB of the MPU address.
20	SCLOCK	MPU Port Serial Interface Clock Input
21	SDATA	MPU Port Serial Data Input / Output
22	$R_{SET}2$	A resistor connected from this pin to GND is used to control full-scale amplitudes of the Video Signals from DACs D, E and F (the 'small' DACs).
23	COMP2	Compensation Pin for DACs D, E and F. Connect a Capacitor from COMP to V_{AA}.
24	DAC F	RED / S-Video C / V Analog Output.
25	DAC E	BLUE / S-Video Y / U Analog Output.
28	DAC D	GREEN / Composite / Y Analog Output.
29	DAC C	RED / S-Video C / V Analog Output.
33	DAC B	BLUE / S-Video Y / U Analog Output.
35	DAC A	GREEN / Composite / Y Analog Output.
36	COMP1	Compensation Pin for DACs A, B and C. Connect a Capacitor from COMP to V_{AA}.
37	V_{REF}	Voltage Reference Input for DACs or Voltage Reference Output.
38	$R_{SET}1$	A resistor connected from this pin to GND is used to control full-scale amplitudes of the Video Signals from DACs A, B and C (the 'large' DACs).
39	SCRESET/ RTC	This pin can be configured as an input by setting MR42 and MR41 of Mode Register 4. It can be configured as a subcarrier reset pin, in which case a high to low transition on this pin will reset the subcarrier to field 0. Alternatively it may be configured as a Real Time Control (RTC) input.
40	TTXREQ/ GND	Teletext Data Request Signal / Defaults to GND when Teletext not Selected (enables backward compatibility to ADV7175 / ADV7176).

Table 3-5-3 ADV7172KST (2/2)

Pin No.	Name	Function
41	TX/V_{AA}	Teletext Data / Defaults to V_{AA} when Teletext not Selected (enables backward compatibility to ADV7175 / ADV7176).
42	CLAMP	TTL Output Signal to external circuitry to enable clamping of all video signals.
43	PAL_NTSC	Input signal to select PAL or NTSC mode of operation.
44	RESET	The input resets the on chip timing generator and sets the ADV7172 / ADV7173 into default mode. This is NTSC operation, Timing Slave Mode 0, 8 Bit Operation, DACS A, B and C powered OFF, DACs D, E and F powered ON, Composite and S-Video out.
45	VSO	VSYNC TTL Output Sync Signal.
48	CLOCK	TTL Clock Input. Requires a stable 27 MHz reference clock for standard operation. Alternatively a 24.52 MHz (NTSC) or 29.5 MHz (PAL) can be used for square pixel operation.

Table 3-5-4 BU6481KV

Pin No.	Name	Function
1	HA1	CMOS input
2	HA0	CMOS input
3	HD7	CMOS input
4	HD6	CMOS input
5	HD5	CMOS input
6	HD4	CMOS input
7	HD3	CMOS input
8	HD2	CMOS input
9	HD1	CMOS input
10	HD0	CMOS input
11	VSS	———
12	HDEN	CMOS input
13	HDWT	CMOS input
14	MON7	CMOS output
15	MON6	CMOS output
16	MON5	CMOS output
17	MON4	CMOS output
18	VSS	———
19	VDD	———
20	IN1	CMOS input
21	OUT1	CMOS output
22	IN2	CMOS input
23	OUT2	CMOS output
24	RCPD	CMOS input
25	PDOP	CMOS output
26	XPDOP	CMOS output
27	PDON	CMOS output
28	XPDON	CMOS output
29	PPW	CMOS output
30	VDD	———
31	VSS	———
32	RFD	CMOS output
33	MSEL2	CMOS input pulldown input
34	PLCK	CMOS input
35	MSEL1	CMOS input pulldown input
36	MCK	CMOS input
37	OUT4	CMOS output
38	IN4	CMOS input
39	OUT3	CMOS output
40	IN3	CMOS input
41	VSS	———
42	VDD	———
43	MON3	CMOS output
44	MON2	CMOS output
45	MON1	CMOS output
46	MON0	CMOS output
47	MSEL0	CMOS input pulldown input
48	SCL	CMOS schmitt input

Table 3-5-5 LH28F800SGE-L70

Pin No.	Name	Function
1 | 8 16 | 25 48	A_0-A_{18}	Address input: Address input during reading and writing. These addresses are latched inside during data write cycle.
9 10 47	NC	Non connection: Not connected inside. Possible to use both for connection and non connection.
11	WE#	Writing enable: Controls writing on command user interface (CUI) and memory array. Latches address and data at rising edge of WE# pulse.
12	RP#	Reset, deep power down: Shifts device to deep power down mode and resets internal circuit automatically. When RP# develops high, device operates normally. When low, Write operation is inhibited and data is protected until power supply is stable. After returning from the deep power down mode, the device enters array reading status. Permanent lock bit can be set at RP#=V_{HH}. Do not erase block, write word and set lock bit at V_{IH}<RP#<V_{HH} since malfunction wil occur.
13	V_{PP}	Block erase/word write/lock bit setting power supply: Power supply that is for Block erase, word write, lock bit setting. At $V_{PP} \leqq V_{PPLK}$, contents of the memory is not changed. Do not erase block, write word and set lock bit at ineffective V_{CC} voltage (Refer to DC characteristic.) since malfunction will occur.
14	WP#	Write protect: Controls block lock. When WP# develops low, erasing locked block and writing are inhibited.
15	RY/BY#	Ready/ busy: Develops internal write state machine (WSM) condition. Indicates at Low that WSM is in the operation (when block is erased, word written and lock bit is set.). Indicates at high that WSM is either waiting for next command, not writing word during block erase interruption, interrupting, to write word, or in the deep power down mode. RY/BY# does not enter float condition at no device selection or data disable and is always active.
26	CE#	Chip enable: Activates control logic of device, input buffer, decoder, sense amp. When CE# develops high, memory device is not selected, power consumption is reduced to the standby level.
27 46	GND	Ground: Surely connect to ground.
28	OE#	Output enable: Controls device output during reading cycle.
29 | 36 38 | 45	DQ_0-DQ_{15}	Data I/O: Data and command input, during writing command user interface (CUI) cycle, data output during reading, memory array, status resistor and ID code cycles. Enter float status at device non-selection or output device disable. Data is latched inside during writing cycle.
37	V_{CC}	Device power supply: Identifies operation voltage (3.3V, 5V) inside the device automatically. When shifting the voltage from one voltage range to another, it is required to lower the voltage to ground level once and, after that, add voltage newly. Connect all power supply pins. It is inhibited to write all to flash memory at $V_{CC} \leqq V_{LKO}$. Do not operate device at ineffective V_{CC} voltage (Refer to DC characteristic.), since malfunction will occur. Deleting block, writing word and setting lock bit are not supported at VCC<2.7V.

Table 3-5-6 MD36710X (1/5)

Pin No.	Name	Function
Host Interface, CD-DSP interface, Sub ode interface (32 pins)		
	HD [15:12]	When connecting HWID to V_{DD}, become data lines 15:12 of 16 bit host data bus. When connecting HWID to GND, the lines become CD-DSP serial input port pins defined as below.
3	CDERR (HD [15])	CD-DSP data error input
4	CDFRM (HD [14])	CD-DSP LR clock (frame) input
5	CDDAT (HD [13])	CD-DSP data input
6	CDDAT (HD [12])	CD-DSP bit clock input
	HD [11:8]	When connecting HWID to V_{DD}, become data lines 11:8 of 16 bit host data bus. When connecting HWID to GND, the lines become sub code port pins defined as below.
7	SCCLK (HD [11])	Sub code bit clock output
9	SCDAT (HD [10])	Sub code bit clock input
10	SCSYN (HD [9])	Sub code sync signal display input
11	SCFRM (HD [8])	Sub code frame sync input
12 14 | 17 19 | 21	HD [7:0]	8 l.s. host data bus. When connecting HWID to GND, only the 8 l.s. signal is defined as a host data signal. When connecting HWID to V_{DD}, 8 l.s. line is used for of 16 bit data bus.
22 24 25 26	HA [3:0]	Host address input. Inputs address signal that specifies physical address inside MD36710X.
27	HWR# (HR/W#)	Host protocol, type A (HTYPE=GND): HR/W#. Decides direction of host access. Host protocol, type B (HTYPE=V_{DD}): HWR#. Host writing input (active low).
29	HCS#	Host chip select input. Active low.
30	HRD# (HDS#)	Host protocol, type A (HTYPE=GND): HDS#. Data strobe input (active low). Host protocol, type B (HTYPE=V_{DD}): HRD#. Host writing input (active low).
31	HRDY	Host ready output (active high). Use this signal to transmit bit stream via host bus. External pull-up resistor is required. Transmission of CodBurstLen byte length is determined as 1 packet. Check that the signal is active before transmitting each packet. Possible to write the bit stream serially up to CodBurstLen byte to MD36710X.
32	HACK#	Host acknowledge output (active low). Protocol is type A, MD36710X asserts this output and notify completion of reading or writing cycle. If this signal is not active, 3-state condition occurs (External pull-up resistor is required.). If protocol is type B, the signal functions as wait output signal. When high speed host (microprocessor) is used, this signal may not be used.
34	HIRQ#	Interruption requirement (active low). Deassert when host reads interruption status resister of MD36710X. Also deassert after host masks interruption in the interrupt mask resister of MD36710X or reseting. If HIRQ# is not asserted, 3-state condition occurs (External pull-up resistor is required.)

Table 3-5-6 MD36710X (2/5)

Pin No.	Name	Function
35	HWID	Determines data bus width of host interface. It can be changed only during reset. Host interface of MD36710X is set to 8 bit width at low level (GND) and set to 16 bit width at high level (V_{DD}).
36	HORD	Determines byte order for data bus of host interface in 16 bit width setting. (HWID: V_{DD}). It can be changed only during reset. Set MD36710X to obtain I/O signals of m.s. byte in HD [15:8] at low level (GND) and those in HD [7:0] at high level. If HWID is GND level, connect to GND.
37	HTYPE	Determines protocol of host bus. It can be changed only during reset. Sets MD36710X to type A at low level and type B at High level.
130	STNDBY#	Standby input (active low). All output pins and bidirectional pins become float state if asserting with RESET# and MD36710X is cut electrically from peripheral circuits. All internal operation stop and power consumption is confined to the minimum. Contents of SDRAM are not stored at stanby.
141	RESET#	Reset input (active low). Initializing process of MD36710X starts at the time deasserting is carried out from assert state.
142	IDLE	Idle, init or reset states display output (active high).
GPI/O signal (4 pins)		
2	GPSI	General input controlled by DVP micro code.
122 123	GPAI/O [1:0]	General bidirectional pin controlled by ADP micro code. After resetting, this pin is defined as an input pin. ADP command specifies the setting.
159	GPSO	General output conrolled by DVP micro code.
PLL signal (6 pins)		
126	GCLK1	27.000 MHz master clock input for audio. Must be connected to GCLK for usual operation.
128	XO	Output to the crystal connected to GCLK. If the crystal is not used for GCLK, XO is not connected.
129	GCLK	27.000 MHz clock for main processor or crystal input.
135 137	PLLCFG [1:0]	PLL configuration input. It can be changed only during reset. Both pins must be connected to GND (digital) for usual operation.
136	PLLCA	Capacitor connection pin for PLL. Conneect 47nF capacitor. Connect the other terminal of the capecitor to PLLGND.

Table 3-5-6 MD36710X (3/5)

Pin No.	Name	Function
Digital video port (24 pins)		
84	VCLK	VCLKx2 signal is divided by 2. Used as a qualifier of data and sync signal.
85	VMASTER	Video master/slave selection input. At high level, video sync in MD36710X enters master mode. (Video sync and clock signals are developed.) After low level, video sync enters slave mode. (Video sync and clock signals are entered.) Only during reset, setting of terminal can be changed.
87	VDEN#	Video enable input (active low). When active, MD 36710X develops video data. When deasserting, pixel output becomes 3-state condition. (But sync and clock signals are kept to be active.) Input is changeable at any time but becomes effective at the next VCLKx2.
89	VSYNC	Vertical sync bidirectional signal pin. Polarity and length are programmable.
90	HSYNC	Horizontal sync bidirectional signal pin. Polarity and length are programmable.
91	FI	Field identification bidirectional signal pin. Polarity is programmable.
92 94 | 97 99 | 101	Y [7:0]	At 16 bit video mode (Video 8=0), develop luminance signals. At 8 bit mode (Video 8=1), develop luminance and color difference signals multiplexed in time sequence according to the ITU-R656 standard (in no relation to presence of SAV and EAV sync code).
98	CBLANK	Composite blank output. Waveforms are programmable other than polarity.
	C [7:0]	At 16 bit video mode (Video 8=0), develop color difference signal. At 8 bit mode (Video 8=1), m.s. line 3 pin (c [7:5]) is not used, l.s.5 pin (C [4:0]) is used as input from external OSD device.
102 104 105	(C [3:0])	
106	OSDPLT (C [4])	On-chip OSD palette selector. Selects OSD Palette0 at low level and OSD Plette1 at high level.
107 109 | 111	OSDPEL [3:0]	OSD pixel input. Used as an entry signal to on-chip OSD palette.
124	VCLKx2	Main video clock input or output. 27.000 MHz.
Digital audio port (8 pins)		
112	AIN	Serial input of PCM stereo audio for ADC
114 115 116	AOUT [2:0]	Serial output of PCM stereo audio for DAC. After reset, develop signals of low level. Only AOUT [0] supports 24 bit sample width.
117	S/PDIF (AOUT [3])	S/PDIF transmitter output. Possible to connected to DAC as the forth audio output (AOUT [3]). After reset, develop signal of low level.
118	ALRCLK	LR clock output of AOUT [3..0] and AIN. Becomes square waveform in sampling frequency. Polarity of LR is programmable.
119	ABCLK	Bit clock output of AOUT [3..0] and AIN. At rising/falling edges (programmable) AOUT is developed and AIN is latched.

Table 3-5-6 MD36710X (4/5)

Pin No.	Name	Function
132	AMCLK	Audio master clock I/O. 384 fs, 256 fs, 192 fs and 128 fs of sampling frequency can be selected (programmable).
DVD-DSP interface (13 pins)		
143	DVDERR	DVD-DSP error input (Polarity programmable)
144	DVDSOS	DVD-DSP data selector start input (Polarity programmable)
146	DVDVALID	DVD-DSP data effective input (Polarity programmable)
147	DVDSTRB	DVD-DSP data bit strobe (clock) input. Polarity programmable.
148	DVDREQ	DVD-DSP data requirement output (Polarity programmable)
149 151 | 154 156 | 158	DVDDAT [7:0]	DVD-DSP data input bus
SDRAM interface (35 pins)		
38 39 42 | 47 49 | 52	RAMADD [11:0]	SDRAM address bus output
54	RAMCS0#	SDRAM chip select (active low) output. Lower bit for 2 Mbyte device.
55	RAMCS1#	SDRAM ship select (active low). Upper bit for 2 Mbyte device.
56	RAMRAS#	Row selection of SDRAM (active low) output
57	PCLK	SDRAM clock output (same as internal process clock).
59	RAMCAS#	Column selection of SDRAM (active high) output
60	RAMWE#	SDRAM write enable (active low) output
61	RAMDQM	SDRAM data masking (active high) output
62 64 | 67 69 | 72 74 | 79 82	RAMDAT [15:0]	SDRAM bidirectional data bus
TEST signal (3 pins)		
83	TESTMODE	Test pin. Connects to V_{DD} for normal.
127	SCNENBL	Test pin. Connects to GND for normal.
139	ICEMODE	Test pin. Connects to V_{DD} for normal.

Table 3-5-6 MD36710X (5/5)

Pin No.	Name	Function
Power signal (35 pins)		
1 13 23 40 41 53 68 80 81 93 108 120 121 125 131 145 160	GND	Digital GND
8 18 28 33 48 58 63 73 86 98 103 113 133 140 150 155	VDD	Digital power supply (3.3V)
134	PLLGND (GNDA)	GND of internal PLL circuit
138	PLLV_{DD} (V_{DD}A)	Power supply of internal PLL circuit (3.3V)

Table 3-5-8 W26010AT

<table>
<tr><th>Pin No.</th><th>Name</th><th>Function</th></tr>
<tr><td>1
|
5
18
|
21
24
|
27
28
42
|
44</td><td>A_0-A_{15}</td><td>Address input</td></tr>
<tr><td>6</td><td>$\overline{CS}$</td><td>Chip select input</td></tr>
<tr><td>7
|
10
13
|
16
29
|
32
35
|
38</td><td>I/O_1-I/O_{16}</td><td>Data input/output</td></tr>
<tr><td>11
33</td><td>V_{DD}</td><td>Power supply</td></tr>
<tr><td>12
34</td><td>V_{SS}</td><td>Ground</td></tr>
<tr><td>17</td><td>$\overline{WE}$</td><td>Write enable input</td></tr>
<tr><td>22
23</td><td>NC</td><td>No connection</td></tr>
<tr><td>39</td><td>$\overline{LB}$</td><td>Lower byte select I/O_1-I/O_8</td></tr>
<tr><td>40</td><td>$\overline{UB}$</td><td>Upper byte select I/O_9-I/O_{16}</td></tr>
<tr><td>41</td><td>$\overline{OE}$</td><td>Output enable input</td></tr>
</table>

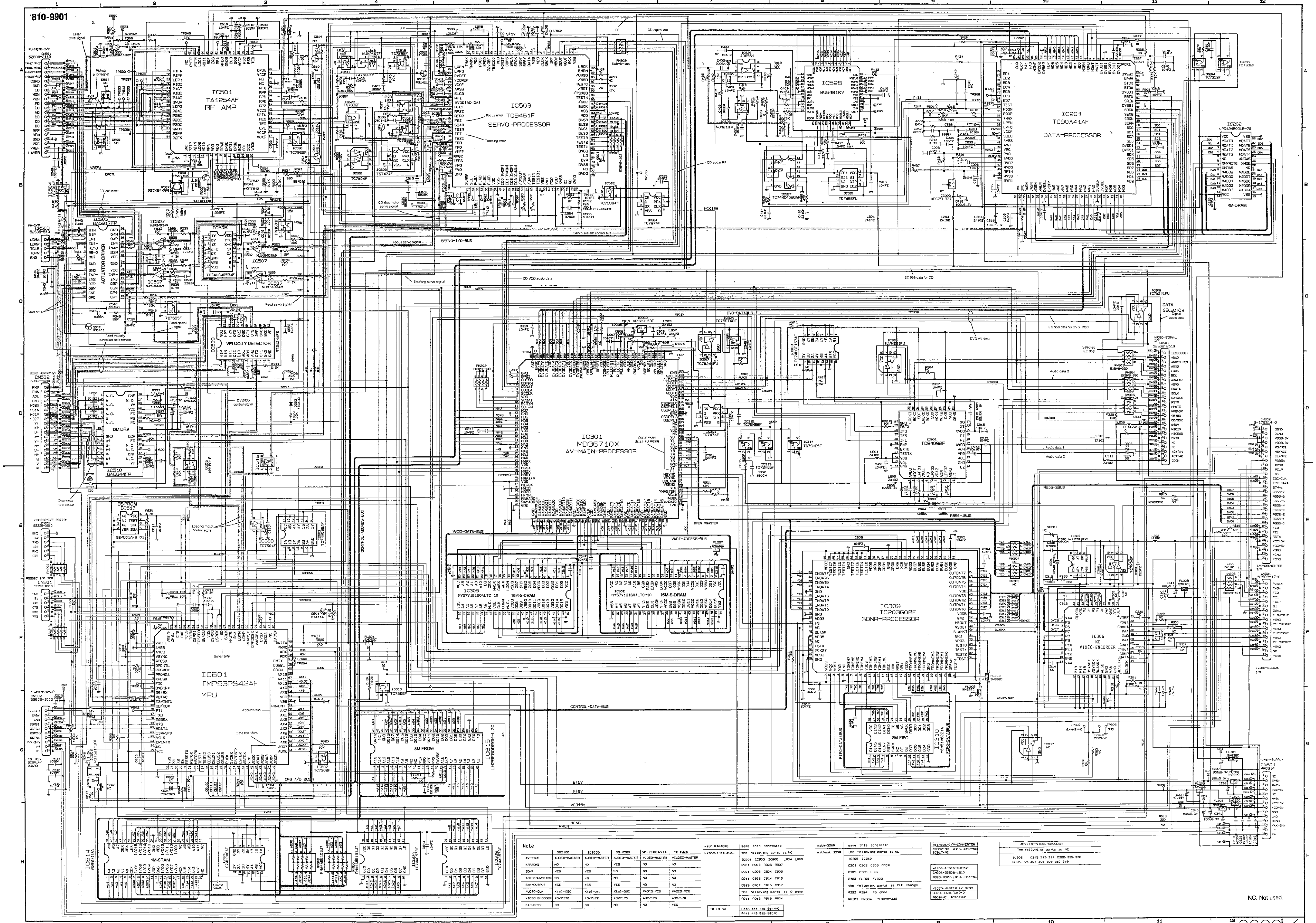
Table 3-5-7 NJU6321PE

<table>
<tr><th>Pin No.</th><th>Name</th><th>Function</th></tr>
<tr><td>1</td><td>$\overline{CONT}$</td><td>Control terminal for oscillation stop and frequency division step reset.
<table>
<tr><th>$\overline{CONT}$</th><th>FOUT</th></tr>
<tr><td>H or OPEN</td><td>Outputs whether fo, fo/2, fo/4 or fo/8</td></tr>
<tr><td>L</td><td>Oscillation stop and demultiply reset
F_{OUT}=Z</td></tr>
</table></td></tr>
<tr><td>2
7</td><td>$\overline{XT}$
XT</td><td>Crystal resonator connection terminal</td></tr>
<tr><td>3
6</td><td>IN1
IN2</td><td>Selects output by IN1 and IN2
<table>
<tr><th>IN1</th><th>IN2</th><th>F_{OUT}</th></tr>
<tr><td>H</td><td>H</td><td>fo</td></tr>
<tr><td>L</td><td>H</td><td>fo/2</td></tr>
<tr><td>H</td><td>L</td><td>fo/4</td></tr>
<tr><td>L</td><td>L</td><td>fo/8</td></tr>
</table></td></tr>
<tr><td>5</td><td>F_{OUT}</td><td>Outputs among fo, fo/2, fo/4 or fo/8</td></tr>
<tr><td>84</td><td>V_{DD}
V_{SS}</td><td>Power supply terminal
V_{DD} ----- +5V
V_{SS} ----- GND</td></tr>
</table>

5-3-2. Main Circuit Diagram

Part No.	Location
C201	B9
C202	B9
C203	B9
C204	B9
C205	B9
C206	B9
C208	B9
C209	B10
C210	B10
C211	B10
C212	B11
C213	A11
C214	A11
C216	A10
C217	B9
C218	B9
C219	B9
C220	A11
C221	B9
C225	B11
C227	A11
C228	A11
C239	A9
C240	B9
C242	A9
C243	A9
C245	A11
C246	A11
C247	B10
C301	F8
C302	G8
C303	F9
C304	E9
C305	E9
C306	E8
C307	G8
C308	E10
C309	E10
C310	F11
C311	F11
C312	F10
C313	F11
C314	F10
C315	F10
C316	H12
C317	D5
C318	E5
C319	E6
C320	E10
C322	G10
C323	E11
C334	G11
C335	F11
C336	F11
C337	G12
C338	G12
C339	G11
C340	H11
C341	H12
C344	G11
C345	G11
C347	E6
C348	C7
C349	C6
C350	C5
C351	D7
C352	E7
C401	A4
C402	A4
C403	A4
C404	A7
C405	A7
C406	A7
C407	B7
C408	A8
C409	A8
C410	A9
C411	A7
C413	B8
C414	B7
C415	B8
C416	B9
C417	B8
C420	A7
C501	A1
C502	A2
C503	A4
C504	A4
C505	B3
C506	B3
C507	A3
C508	A4
C509	A3
C510	A3
C511	A3
C512	A3
C513	B3
C514	A3
C515	B4
C516	B2
C519	A3
C520	B3
C521	B3
C522	A3
C523	B3
C524	B3
C526	B3
C527	B3
C528	B3
C529	B7
C532	C2
C533	B2
C534	C2
C535	C2
C538	C2
C539	C2
C540	B1
C541	B1
C542	C1
C543	C1
C544	C2
C545	C2
C546	C1
C548	B3
C549	B3
C550	C2
C551	C3
C552	C3
C553	C3
C554	D3
C555	D3
C556	D1
C557	D1
C558	D1
C559	D2
C560	D2
C561	D2
C562	D2
C563	D2
C564	B6
C565	B6
C572	A5
C573	A5
C574	A5
C575	A4
C576	A4
C577	B5
C578	B4
C579	B4
C580	B4
C582	B4
C583	B4
C584	B5
C585	B5
C588	B6
C589	A3
C591	B6
C592	A6
C594	A5
C595	A5
C597	A5
C598	A5
C599	A5
C601	F2
C602	G4
C603	G2
C604	G3
C605	G3
C606	F2
C607	F2
C610	E3
C611	E2
C614	H4
C615	F1
C616	G1
C617	G1
C618	G1
C619	G1
C621	H3
C622	H12
C623	H12
C624	H12
C901	D8
C902	E9
C903	E9
C904	E9
C905	E9
C907	C6
C908	C6
C909	C7
C910	C6
C911	E9
C912	E9
C913	D9
C914	D9
C915	D9
C916	D9
C917	D9
C918	C11
CN301	E12
CN302	D12
CN501	A1
CN502	D1
CN503	B1
CN601	F1
CN602	G1
CN603	E1
CN801	G12
CN901	C11
D501	A2
D502	A3
D503	D3
D504	A2
D505	B2
E231	E7
E245	A9
E246	A9
E247	B10
E248	B9
E301	F12
E302	F12
E303	F12
E304	F12
E305	F12
E306	F12
E307	F12
E308	F12
E309	F12
E310	F12
E311	F12
E312	F12
E313	F12
E314	F12
E315	F10
E316	F10
E317	F10
E318	F10
E319	F10
E320	F10
E321	F10
E322	F10
E323	F10
E324	F12
E325	F12
E326	E12
E327	E12
E328	E12
E329	E12
E330	D7
E331	E7
E332	E12
E501	A1
E502	A1
E503	A1
E504	A1
E505	B2
E506	A1
E507	A1
E508	A1
E509	A1
E510	A1
E511	A1
E512	A1
E513	A1
E514	A1
E515	A1
E516	A1
E517	A1
E518	B1
E519	B1
E520	B1
E521	B1
E522	B1
E523	D1
E524	D1
E525	D1
E526	D1
E527	D1
E528	D1
E529	D1
E530	D1
E531	D1
E532	D1
E533	D1
E534	D1
E535	D1
E536	D1
E537	D1
E538	D1
E539	D1
E540	D1
E541	D1
E543	B1
E544	C1
E545	C1
E546	C1
E547	C1
E548	A3
E549	B3
E550	A2
E551	A2
E557	A5
E558	B3
E559	B3
E560	C3
E561	C3
E562	A8
E563	A8
E564	A8
E565	A8
E566	B8
E567	B8
E568	A8
E569	A8
E570	A8
E571	A8
E572	A8
E573	A8
E574	A8
E575	A8
E576	A7
E577	A8
E578	B8
E601	F1
E602	F1
E603	F1
E604	F1
E605	F1
E606	G1
E607	F1
E608	G1
E609	G1
E610	G1
E611	G1
E612	G1
E613	G1
E614	G1
E615	G1
E616	F1
E617	F4
E628	G1
E629	G2
E801	G12
E802	G12
E803	G12
E804	G12
E805	G12
E806	G12
E807	H12
E808	H12
E809	H12
E810	H12
E811	H12
E812	H12
E813	H12
E814	H12
E815	G12
E816	G11
E817	G11
E818	G11
E819	H11
E901	C11
E902	D11
E903	D11
E904	D11
E905	D11
E906	D11
E907	D11
E908	D11
E909	D11
E910	D11
E911	D11
E912	D11
E913	D11
E914	D11
E915	D11
E916	D11
E917	D11
E918	D11
E919	D11
E920	D11
E921	D11
E922	D11
E923	D11
E924	D11
E925	D11
FL301	G12
FL302	G12
FL303	G11
FL304	G12
FL305	H12
FL306	F9
FL307	E7
FL308	F11
FL309	F9
FL501	A3
FL502	D2
FL601	F4
IC201	A10
IC202	A12
IC203	B9
IC204	A11
IC205	A12
IC301	D6
IC302	F6
IC305	F5
IC306	F10
IC307	E10
IC308	E11
IC309	F9
IC310	G9
IC311	D11
IC312	D7
IC313	D7
IC314	D8
IC501	A3
IC503	A5
IC504	B1
IC505	B2
IC506	B3
IC507	C2
IC508	C2
IC509	C3
IC510	E2
IC512	B4
IC516	D3
IC517	A4
IC518	A4
IC519	A4
IC520	A4
IC521	B4
IC522	B4
IC523	B4
IC524	B6
IC525	A7
IC526	A7
IC527	B8
IC528	A8
IC529	B8
IC530	B3
IC601	F2
IC602	G1
IC603	E3
IC604	H4
IC605	H3
IC607	G3
IC608	E3
IC609	H5
IC613	E2
IC614	H1
IC615	G5
IC616	F4
IC901	D9
IC902	C6
IC903	C8
IC904	C7
IC906	C11
IC907	D7
IC908	C9
L201	B9
L202	A5
L204	B9
L302	E11
L303	C7
L307	E12
L501	B8
L502	C2
L601	C3
L610	G1
L904	D8
L905	D11
L906	E9
L907	C7
L909	D11
L910	D10
L911	D11
Q501	A2
Q502	C1
Q503	B3
Q504	A4
Q505	A4
Q506	E2
Q507	B2
Q508	B2
Q510	A3
Q511	B3
Q512	A4
Q601	F3
R201	A9
R208	A11
R210	B9
R212	A9
R213	B9
R214	A9
R215	A9
R216	A9
R217	A9
R218	A9
R220	A11
R221	A11
R223	A10
R224	A10
R225	A9
R226	A11
R227	A11
R228	A11
R229	A9
R230	A11
R301	F11
R302	F11
R303	F8
R305	F11
R306	F11
R307	F11
R308	F11
R309	F11
R310	F11
R312	D7
R313	E7
R315	F10
R316	E12
R317	E12
R319	F11
R320	C6
R321	C6
R323	G10
R324	G10
R325	D7
R326	D11
R327	D11
R328	D11
R329	C6
R401	A3
R402	A4
R403	D3
R404	B3
R405	A5
R408	A6
R409	A6
R410	B1
R411	C1
R415	F4
R417	A7
R418	A7
R419	A8
R420	A7
R421	A7
R422	A7
R423	A7
R424	A8
R425	A8
R426	A8
R427	B8
R428	B7
R430	B8
R431	B8
R432	A8
R433	A9
R434	A9
R435	A7
R437	B9
R438	B9
R440	A7
R489	B8
R501	A1
R502	B2
R503	A2
R504	A2
R505	B2
R506	B2
R507	A6
R508	B2
R509	A3
R510	A3
R512	A3
R513	C3
R514	A3
R515	A3
R516	A3
R517	A2
R518	A2
R519	A5
R520	A5
R521	B3
R522	B6
R523	A4
R524	B3
R525	C3
R527	D2
R528	D2
R529	B2
R530	B2
R531	C2
R532	B2
R533	C2
R535	B3
R536	C2
R537	D2
R538	E2
R539	C2
R540	C2
R541	C2
R542	C2
R543	C2
R544	C1
R545	C2
R546	C2
R547	C2
R548	C2
R549	C2
R550	D2
R551	E2
R552	B3
R553	B3
R554	B3
R555	C3
R556	B3
R557	B3
R558	C3
R559	C3
R560	C3
R561	D3
R562	D3
R563	D3
R564	B2
R565	D2
R566	D2
R567	D2
R568	D2
R569	D3
R570	E1
R571	E1
R572	A4
R573	A4
R574	A4
R575	A4
R576	B4
R577	A4
R578	A5
R579	A5
R580	A5
R581	A5
R582	A5
R583	B5
R584	B4
R585	B5
R586	A3
R587	B5
R588	B5
R589	B5
R590	B5
R591	B5
R592	B6
R594	A4
R595	B4
R596	C3
R597	A2
R598	B3
R599	B3
R601	G4
R602	G2
R603	G1
R604	G2
R605	F4
R606	F1
R607	G5
R608	F2
R609	F3
R610	F2
R611	F2
R613	F2
R616	F2
R617	G1
R618	H11
R619	F2
R625	G3
R628	G2
R629	F2
R630	E2
R640	F2
R642	G1
R643	G1
R644	G3
R645	G1
R901	D9
R902	D7
R903	E9
R904	D9
R905	D7
R906	E9
R907	D9
R908	C6
R909	C6
R910	C6
R911	C8
R912	D8
R913	D8
RM302	D5
RM303	F10
RM304	E10
RM305	E12
RM501	B6
RM601	H4
RM602	H3
RM603	E1
RM604	F1
RM902	A6
RM903	D11
RM904	D11
RM905	D11
S602	G2
TP202	A10
TP207	A9
TP208	A9
TP209	A9
TP301	D5
TP302	E5
TP303	C6
TP304	C5
TP305	C7
TP306	C7
TP307	G10
TP308	G10
TP309	G11
TP503	B6
TP504	A4
TP505	A4
TP506	A4
TP507	B4
TP508	B4
TP509	B5
TP510	B5
TP511	B5
TP512	B5
TP513	B5
TP514	B5
TP515	B5
TP516	B5
TP517	B5
TP518	B5
TP519	B6
TP520	B6
TP521	A6
TP522	A6
TP523	A6
TP524	A6
TP525	A5
TP527	A3
TP528	D2
TP529	D2
TP532	A2
TP533	A2
TP534	A2
TP535	A2
TP536	A2
TP537	A2
TP539	A3
TP540	A2
TP541	B3
TP542	B3
TP543	B3
TP560	A6
TP562	A6
TP564	D3
TP570	A1
TP601	F2
TP602	G2
TP603	F3
TP604	F3
TP605	F3
TP606	F3
TP607	F2
TP638	A2
VC301	E10
X301	E10
X501	B6
X601	G2

810-9901


IC501
TA1254AF
RF-AMP
IC503
TC9461F
SERVO-PROCESSOR
IC528
BU6481KV
IC201
TC90A41AF
DATA-PROCESSOR
IC202
UPD424800LE-70
4M-DRAM
IC505
BA5917FP
ACTUATOR DRIVER
IC509
VELOCITY DETECTOR
IC510
BA6664FP
DM DRV
IC301
MD36710X
AV-MAIN-PROCESSOR
IC305
16M-S-DRAM
IC302
16M-S-DRAM
IC309
TC203608F
3DNR-PROCESSOR
IC310
2M-FIFO
IC901
TC9409F
IC306
NC
VIDEO-ENCODER
IC601
TMP93PS42AF
MPU
IC615
8M FROM
IC614
1M-SRAM
IC613
EE-PROM
DATA SELECTOR
SERVO-I/O-BUS
CONTROL-ADDRESS-BUS
CONTROL-DATA-BUS
VADI-DATA-BUS
VADI-ADRESS-BUS
E+5V
M+8V
VDD+5V
MGND

Note

	SD3108	SD9000	SD-K320	SD-2108ASIA	SD-P420
AV-SYNC	AUDIO-MASTER	AUDIO-MASTER	AUDIO-MASTER	VIDEO-MASTER	VILDEO-MASTER
KARAOKE	NO	NO	YES	NO	NO
3DNR	YES	YES	NO	NO	NO
I/P-CONVERTER	NO	NO	NO	NO	NO
6ch-OUTPUT	YES	YES	YES	NO	NO
AUDIO-CLK	Xtal-OSC	Xtal-osc	Xtal-OSC	VADIS-VCO	VADIS-VCO
VIDEO-ENCODER	ADV7170	ADV7172	ADV7170	ADV7170	ADV7170
EX-LD-SW	NO	NO	NO	NO	YES

with-KARAOKE	same this schematic
without-KARAOKE	the following parts is NC
	IC901 IC903 IC908 L904 L906 R901 R903 R906 R907 C901 C903 C904 C905 C911 C912 C914 C916 C913 C902 C915 C917
	the following parts is 0 ohme
	R911 R912 R913 R904

EX-LD-SW	R443. 444. 445. 914=NC R441. 442. 915. 916=0

with-3DNR	same this schematic
without-3DNR	the following parts is NC
	IC309 IC310 C301 C302 C303 C304 C305 C306 C307 R303 FL306 FL309
	the following parts is ELE change
	R323 R324 =0 ohme RM303 RM304 =EXBV8-330

without-I/P-CONVERTER
CN302=NC R316. R317=NC
IC617=NC

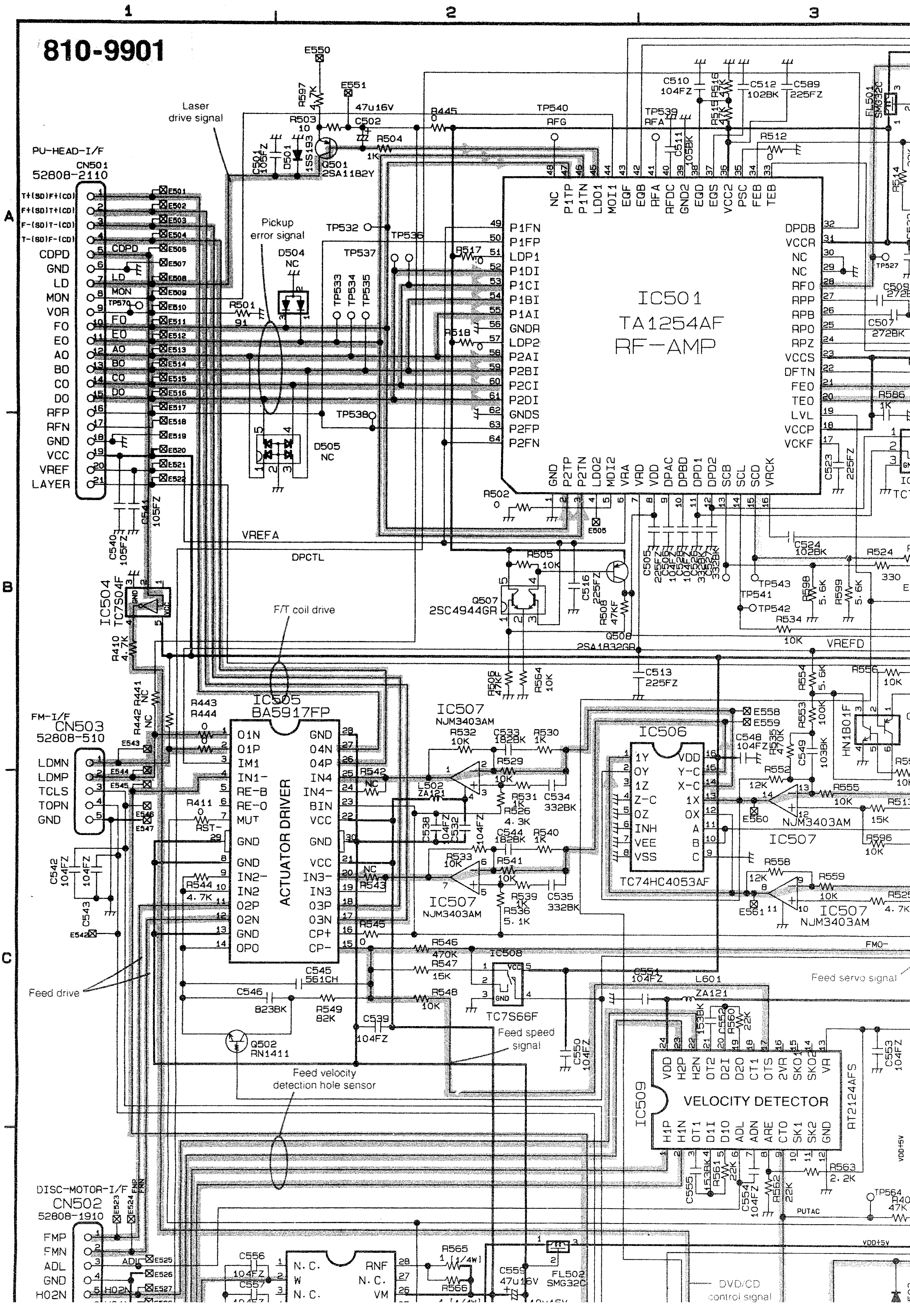
without-6ch-OUTPUT
CN901=52808-1910
R326. R327. L910. L911=NC

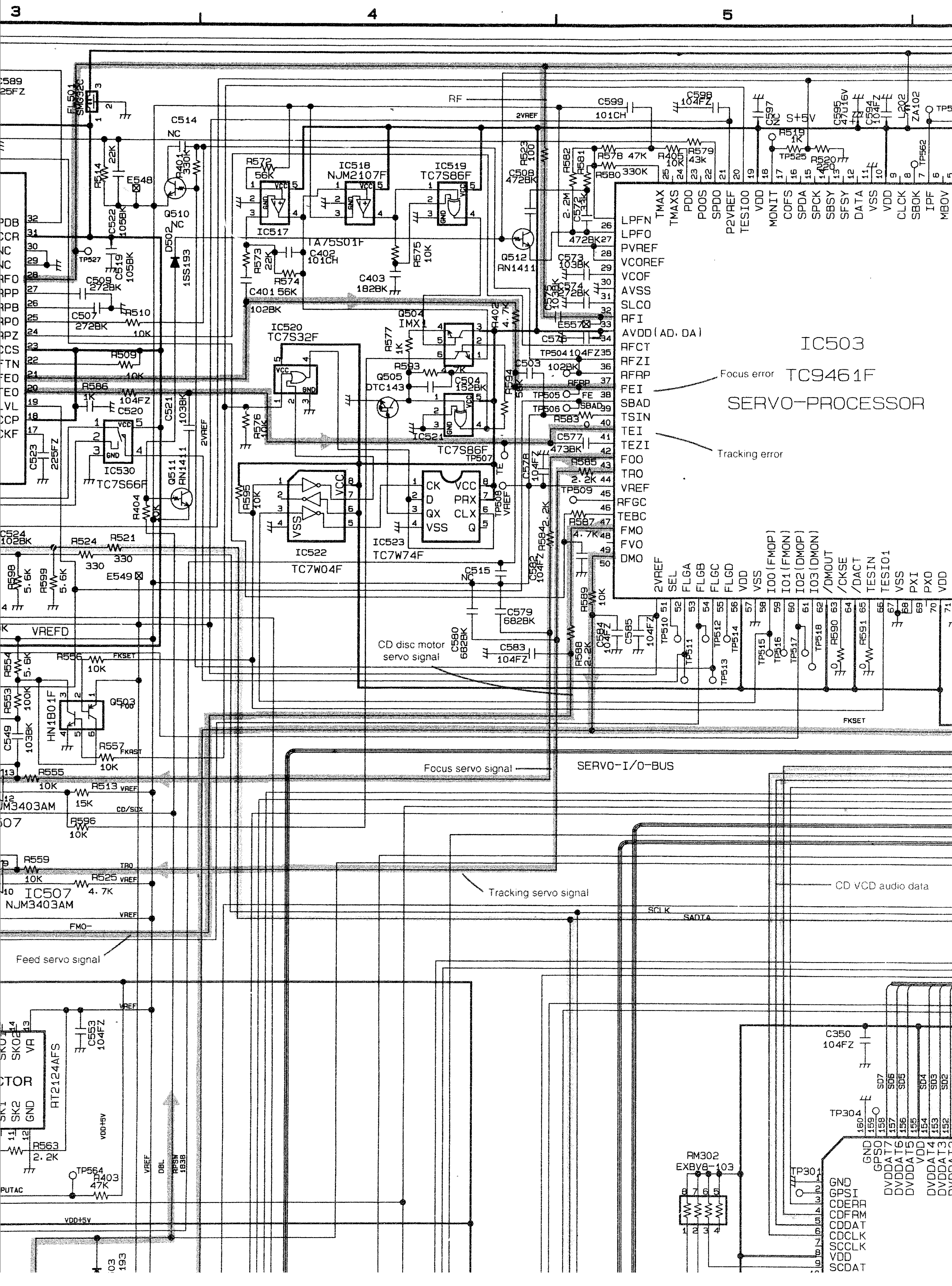
VIDEO-MASTER-AV-SYNC
R329. R908. R910=0
R909=NC IC907=NC

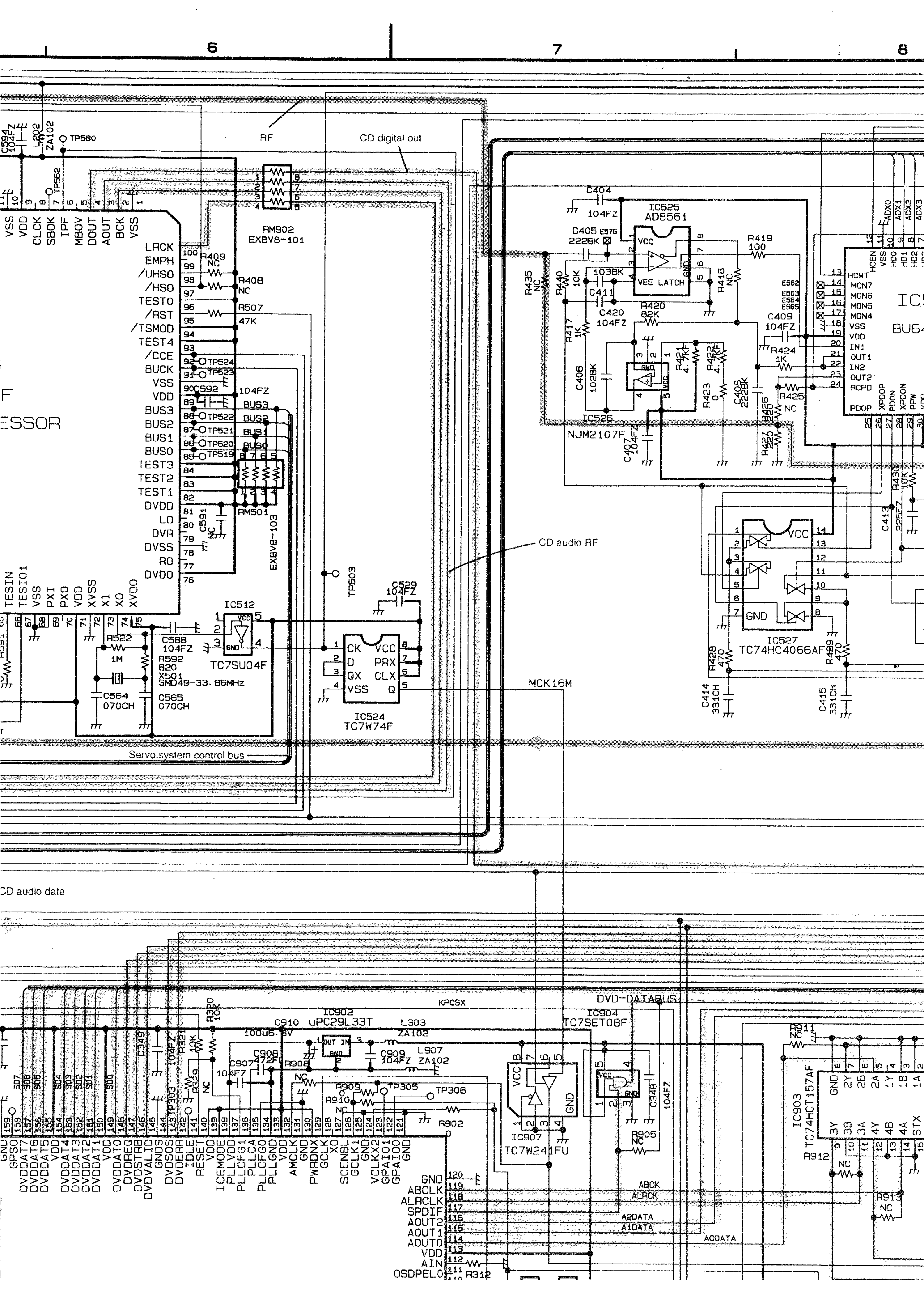
ADV7172-VIDEO-ENCODER
The following parts is NC
IC306 C312. 313. 314 C322. 335. 336
R305. 306. 307. 308. 309. 310. 319

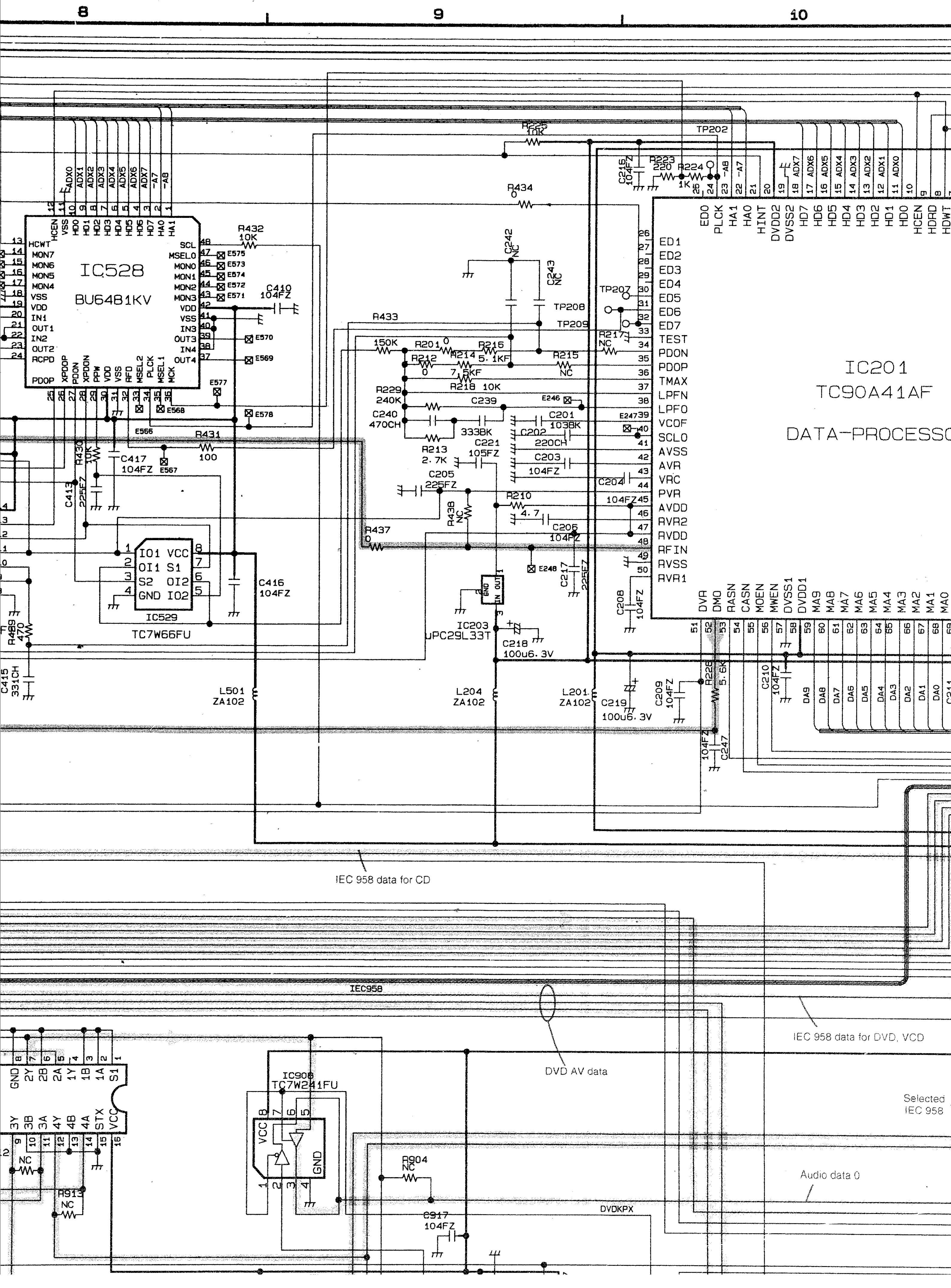
NC: Not used.

Fig. 3-5-5


1
2
3
A
B
C
810-9901
Laser drive signal
PU-HEAD-I/F
CN501
52808-2110
T+(SD)F+(CD)
F+(SD)T+(CD)
F-(SD)T-(CD)
T-(SD)F-(CD)
CDPD
GND
LD
MON
VOR
FO
EO
AO
BO
CO
DO
RFP
RFN
GND
VCC
VREF
LAYER
E550
E551
R597 4.7K
R503 10
47u16V
C502
R504 1K
C501 105FZ
D501 1SS193
Q501 2SA1182Y
R445 0
TP540
RFG
Pickup error signal
D504 NC
TP532
TP536
TP537
R517 10
TP533
TP534
TP535
R501 91
R518
TP538
D505 NC
C510 104FZ
R516 47K
C512 102BK
C589 225FZ
R515 47K
TP539
RFA
C511 105BK
R512 0
FL501 SMG32C
R514
IC501
TA1254AF
RF-AMP
NC P1TP P1TN LDO1 MOI1 EQF EQB RFA RFDC GND2 EQD EQS VCC2 PSC FEB TEB
P1FN P1FP LDP1 P1DI P1CI P1BI P1AI GNDR LDP2 P2AI P2BI P2CI P2DI GNDS P2FP P2FN
DPDB VCCR NC NC RFO RPP RPB RPO RPZ VCCS DFTN FEO TEO LVL VCCP VCKF
GND P2TP P2TN LDO2 MDI2 VRA VRD VDD DPAC DPBD DPD1 DPD2 SCB SCL SCD VRCK
TP527
C509 272B
C507 272BK
R586 1K
C523 225FZ
R502 0
E505
VREFA
DPCTL
R505 10K
C516 225FZ
Q507 2SC4944GR
R508 47KF
Q508 2SA1832GR
C505 225FZ
C506 104FZ
C528 104FZ
C526 333BK
C527 332BK
C524 102BK
R524 330
TP543
TP541
TP542
R598 5.6K
R599 5.6K
R534 10K
VREFD
C540 105FZ
C541 105FZ
IC504 TC7S04F
R410 4.7K
F/T coil drive
R506 47K
R564 10K
C513 225FZ
R554 5.6K
R556 10K
FM-I/F
CN503
52808-510
LDMN
LDMP
TCLS
TOPN
GND
R441 NC
R442 NC
R443 0
R444 0
E543
E544
E545
E546
E547
IC505
BA5917FP
ACTUATOR DRIVER
O1N O1P IM1 IN1- RE-B RE-O MUT GND GND IN2- IN2 O2P O2N GND OPO
GND O4N O4P IN4 IN4- BIN VCC GND VCC IN3- IN3 O3P O3N CP+ CP-
R411 0
RST-
R544 4.7K
C542 104FZ
C543
E542
IC507 NJM3403AM
R532 10K
C533 182BK
R530 1K
R529 10K
R531 1K
R526 4.3K
C534 332BK
R542 NC
L502 ZA121
C538 104FZ
C532 104FZ
C544 182BK
R540 1K
R533 10K
R541 10K
R539 1K
R536 5.1K
C535 332BK
R543 NC
R545 0
IC506
TC74HC4053AF
1Y OY 1Z Z-C OZ INH VEE VSS
VDD Y-C X-C 1X OX A B C
E558
E559
C548 104FZ
R535 470K
C549 103BK
R553 100K
HN1B01F
R552 12K
R555 10K
R513
E560
R558 12K
R559 10K
R596 10K
R525 4.7K
E561
15K
FMO-
Feed servo signal
R546 470K
R547 15K
R548 10K
IC508 TC7S66F
C545 561CH
C546 823BK
R549 82K
C539 104FZ
Q502 RN1411
Feed drive
Feed speed signal
Feed velocity detection hole sensor
C551 104FZ
L601 ZA121
C550 104FZ
C552 153BK
R560 22K
IC509
VELOCITY DETECTOR
RT2124AFS
VDD H2P H2N OT2 D2I D2O CT1 OTS 2VR SKO1 SKO2 VR
H1P H1N OT1 D1I D1O ADL ADN ARE CTO SK1 SK2 GND
C553 104FZ
C555 153BK
R561 22K
C554 104FZ
R562 22K
R563 2.2K
TP564
R40 47K
PUTAC
VDD+5V
DISC-MOTOR-I/F
CN502
52808-1910
FMP
FMN
ADL
GND
HO2N
E523
E524
E525
E526
E527
C556 104FZ
C557
N.C.
W
N.C.
RNF
N.C.
VM
R565 1 (1/4W)
R566 1 (1/4W)
C559 47u16V
FL502 SMG32C
DVD/CD control signal


3
4
5
RF
2VREF
C599 101CH
C598 104FZ
C597 NC
S+5V
C595 47U16V
C594 104FZ
L202 ZA102
TP5
R519 1K
TP525
R520
TP562
FL501 SMG32C
C589 225FZ
C514 NC
R514 22K
E548
R401 330K
Q510 NC
D502 1SS193
C522 105BK
C519 105BK
TP527
C509 272BK
C507 272BK
R510 10K
R509 10K
R586 1K
104FZ
C520
C521 103BK
2VREF
IC530 TC7S66F
C523 225FZ
Q511 RN1411
R404 10K
PDB
CCR
NC
NC
RFO
RPP
RPB
RPO
RPZ
CCS
FTN
FEO
TEO
LVL
CCP
CKF
R572 56K
IC517
IC518 NJM2107F
IC519 TC7S86F
TA75S01F
R573 22K
C402 101CH
R574
C401 56K
102BK
C403 182BK
R575 10K
R523 100
C508 472BK
Q512 RN1411
R582 2.2M
R581
C572 33K
472BK
C573 103BK
C574 472BK
C575 103BK
E557
R578 47K
R405 10K
R579 43K
R580 330K
IC520 TC7S32F
Q504 IMX1
R577 1K
R593
Q505 DTC143
C504 152BK
IC521 TC7S86F
R402 4.7K
R594 56K
C503 102BK
C576
TP504 104FZ
TP505
TP506
FE
SBAD
R583
C577 473BK
R576 10K
TP507
TE
IC522 TC7W04F
R595 10K
IC523 TC7W74F
CK VCC D PRX QX CLX VSS Q
TP508 VREF
C578 104FZ
R585 2.2K
TP509
R584 2.2K
R587 4.7K
C582 104FZ
C515 NC
C579 682BK
C580 682BK
C583 104FZ
R588 2.2K
R589 10K
C584 104FZ
C585 104FZ
IC503
TC9461F
SERVO-PROCESSOR
Focus error
Tracking error
TMAX TMAXS PDO POOS SPDO P2VREF TESIO0 VDD MONIT COFS SPDA SPCK SBSY SFSY DATA VSS VDD CLCK SBOK IPF MBOV
LPFN LPFO PVREF VCOREF VCOF AVSS SLCO RFI AVDD(AD, DA) RFCT RFZI RFRP FEI SBAD TSIN TEI TEZI FOO TRO VREF RFGC TEBC FMO FVO DMO
2VREF SEL FLGA FLGB FLGC FLGD VDD VSS IO0(FMOP) IO1(FMON) IO2(DMOP) IO3(DMON) /DMOUT /CKSE /DACT TESIN TESIO1 VSS PXI PXO VDD
TP510 TP511 TP512 TP513 TP514 TP515 TP516 TP517 TP518
R590 R591
CD disc motor servo signal
FKSET
C524 102BK
R524 330
R521 330
E549
R598 5.6K
R599 5.6K
VREFD
R554 5.6K
R556 10K
R553 100K
HN1B01F
Q503
C549 103BK
R557 10K
FKRST
R555 10K
R513 15K
VREF
CD/SDX
NJM3403AM
R596 10K
IC507
R559 10K
R525 4.7K
TRO
NJM3403AM
FMO-
Focus servo signal
SERVO-I/O-BUS
Tracking servo signal
CD VCD audio data
SCLK
SADTA
Feed servo signal
C553 104FZ
SKO1 SKO2 VR
SK1 SK2 GND
CTOR
RT2124AFS
R563 2.2K
VDD+5V
VREF
DBL
RPSW 1838
TP564
R403 47K
PUTAC
VDD+5V
C350 104FZ
TP304
SD7 SD6 SD5 SD4 SD3 SD2
GND GPSO DVDDAT7 DVDDAT6 DVDDAT5 VDD DVDDAT4 DVDDAT3
RM302 EXBV8-103
TP301
GND GPSI CDERR CDFRM CDDAT CDCLK SCCLK VDD SCDAT


6
7
8
RF
CD digital out
CD audio RF
CD audio data
Servo system control bus
MCK16M
KPCSX
DVD-DATABUS
ESSOR
C594 104FZ
L202 ZA102
TP560
TP562
RM902 EXBV8-101
RM501 EXBV8-103
LRCK
EMPH
/UHSO
/HSO
TESTO
/RST
/TSMOD
TEST4
/CCE
BUCK
VSS
VDD
BUS3
BUS2
BUS1
BUS0
TEST3
TEST2
TEST1
DVDD
LO
DVR
DVSS
RO
DVDO
VSS VDD CLCK SBOK IPF MBOV DOUT AOUT BCK VSS
TESIN TESIO1 VSS PXI PXO VDD XVSS XI XO XVDO
R409 NC
R408 NC
R507 47K
C592 104FZ
TP524
TP523
TP522
TP521
TP520
TP519
C591 NC
IC512 TC7SU04F
C588 104FZ
R522 1M
R592 820
X501 SMD49-33.86MHz
C564 070CH
C565 070CH
TP503
C529 104FZ
IC524 TC7W74F
CK VCC D PRX QX CLX VSS Q
C404 104FZ
IC525 AD8561
C405 222BK
E576
VEE LATCH
R419 100
R435 NC
R440 10K
C411 103BK
R418 NC
R420 82K
C420 104FZ
R417 1K
C406 102BK
IC526 NJM2107F
R421 4.7K
R422 4.7K
R423 0
C408 222BK
C407 104FZ
C409 104FZ
R424 1K
R425 NC
R426 220
R427 220
E562 E563 E564 E565
HCWT MON7 MON6 MON5 MON4 VSS VDD IN1 OUT1 IN2 OUT2 RCPD PDOP
HCEN VSS HD0 HD1 HD2
ADX0 ADX1 ADX2 ADX3
XPDOP PDON XPDON PPW
BU64
R430 10K
C413 225F7
IC527 TC74HC4066AF
R428 470
R429 470
C414 331CH
C415 331CH
R320 10K
R321 10K
C349 104FZ
TP303
R329 NC
IC902 uPC29L33T
C910 100u6.3V
L303 ZA102
C907 104FZ
C908 472FZ
R906
C909 104FZ
L907 ZA102
R909
R910 NC
TP305
TP306
R902
IC907 TC7W241FU
IC904 TC7SET08F
C348 104FZ
R905 NC
R911 NC
IC903 TC74HC157AF
R912
R913 NC
GND 2Y 2B 2A 1Y 1B 1A
3Y 3B 3A 4Y 4B 4A STX
SD7 SD6 SD5 SD4 SD3 SD2 SD1 SD0
GND GPS0 DVDDAT7 DVDDAT6 DVDDAT5 VDD DVDDAT4 DVDDAT3 DVDDAT2 DVDDAT1 VDD DVDDAT0 DVDREQ DVDSTRB DVDVALID GNDS DVDSOS DVDERR IDLE RESET VDD ICEMODE PLLVDD PLLCFG1 PLLCA PLLCFG0 PLLGND VDD AMCLK GND PWRDNX GCLK XO SCENBL GCLK1 GND VCLKX2 GPAIO1 GPAIO0 GND
GND 120
ABCLK 119
ALRCLK 118
SPDIF 117
AOUT2 116
AOUT1 115
AOUT0 114
VDD 113
AIN 112
OSDPEL0 111
R312
ABCK
ALRCK
A2DATA
A1DATA
A0DATA


8
9
10
IC528
BU6481KV
IC529
TC7W66FU
IC201
TC90A41AF
DATA-PROCESSO
IC203
UPC29L33T
IC908
TC7W241FU
R225 10K
R223 220
R224 1K
C216 104FZ
TP202
R434 0
R432 10K
C410 104FZ
C242 NC
C243 NC
TP207
TP208
TP209
R433
R217 NC
R201 0
R216 5.1KF
R214 7.5KF
R212 0
R218 10K
R215 NC
R229 240K
C239
C240 470CH
C201 103BK
C202 220CH
R213 2.7K
C221 105FZ
C203 104FZ
C204
C205 225FZ
R210 4.7
R438 NC
C206 104FZ
R437 0
R431 100
R430 10K
C417 104FZ
C413 225FZ
C416 104FZ
C217 225FZ
C218 100u6.3V
C208 104FZ
L501 ZA102
L204 ZA102
L201 ZA102
C219 100u6.3V
C209 104FZ
R226 5.6K
C210 104FZ
C247 104FZ
R489 470
C415 331CH
R904 NC
C917 104FZ
R913 NC
DVDKPX
IEC958
E575
E573
E574
E572
E571
E570
E569
E577
E568
E578
E566
E567
E246
E247
E248

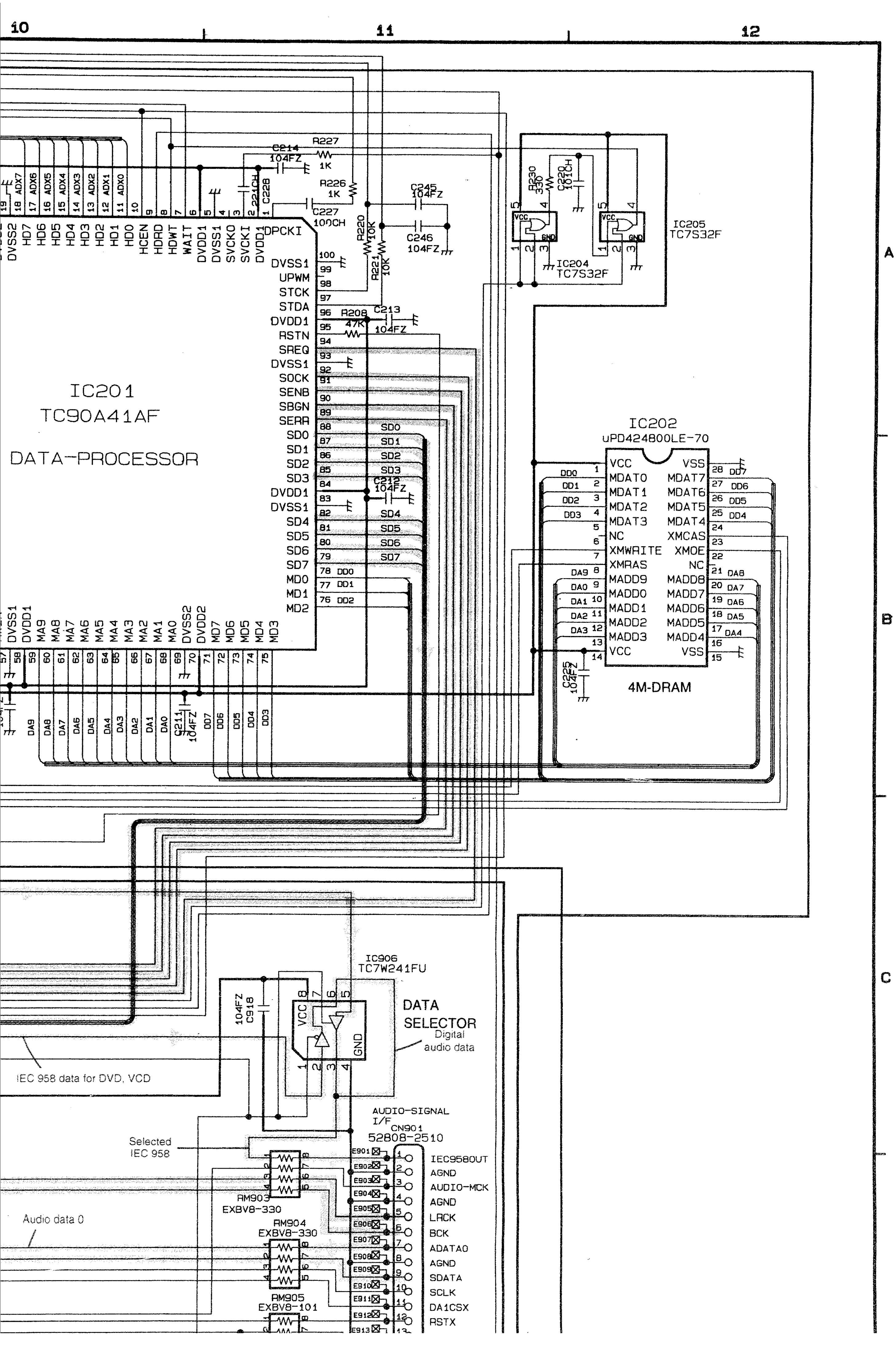
IEC 958 data for CD

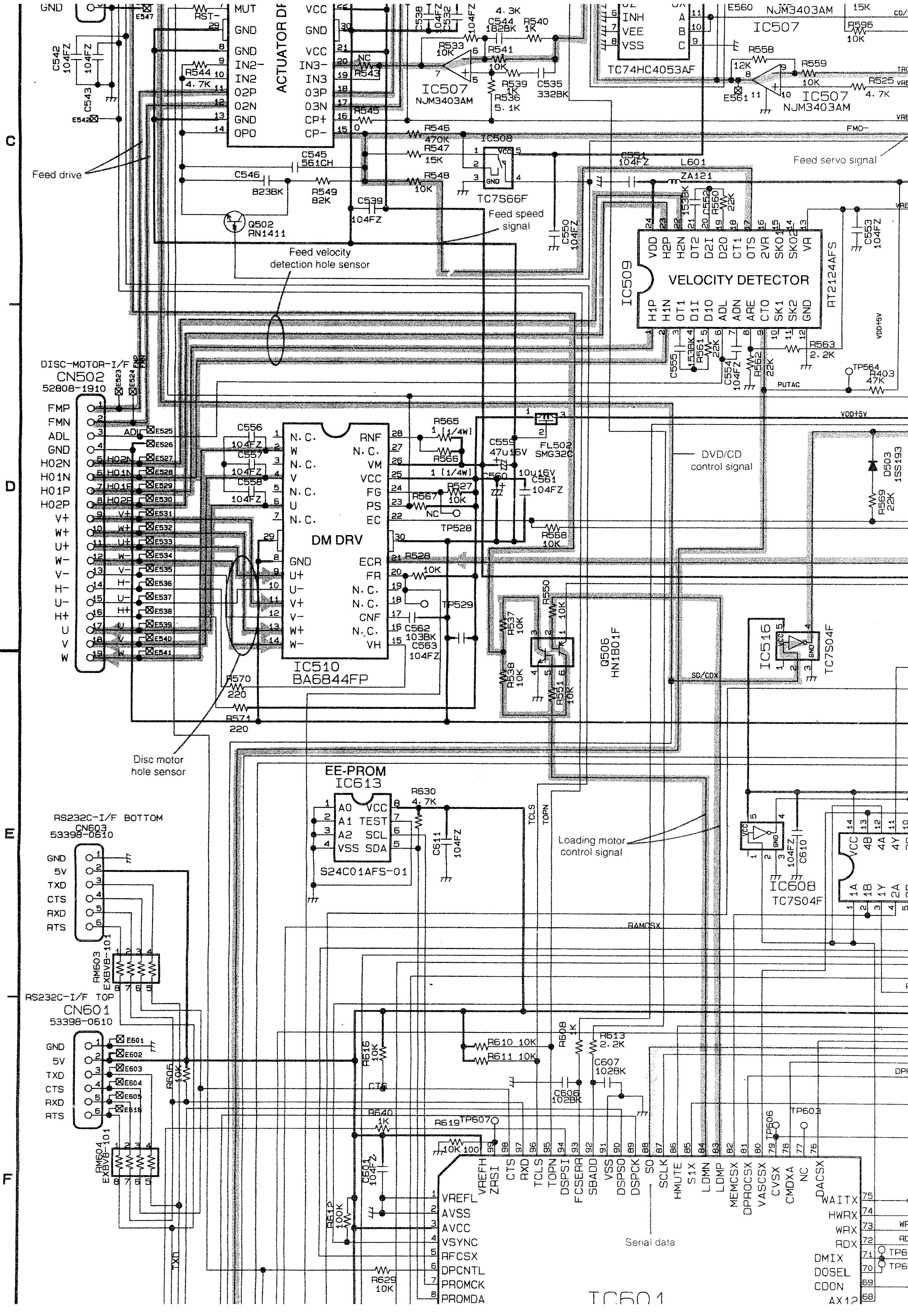
DVD AV data

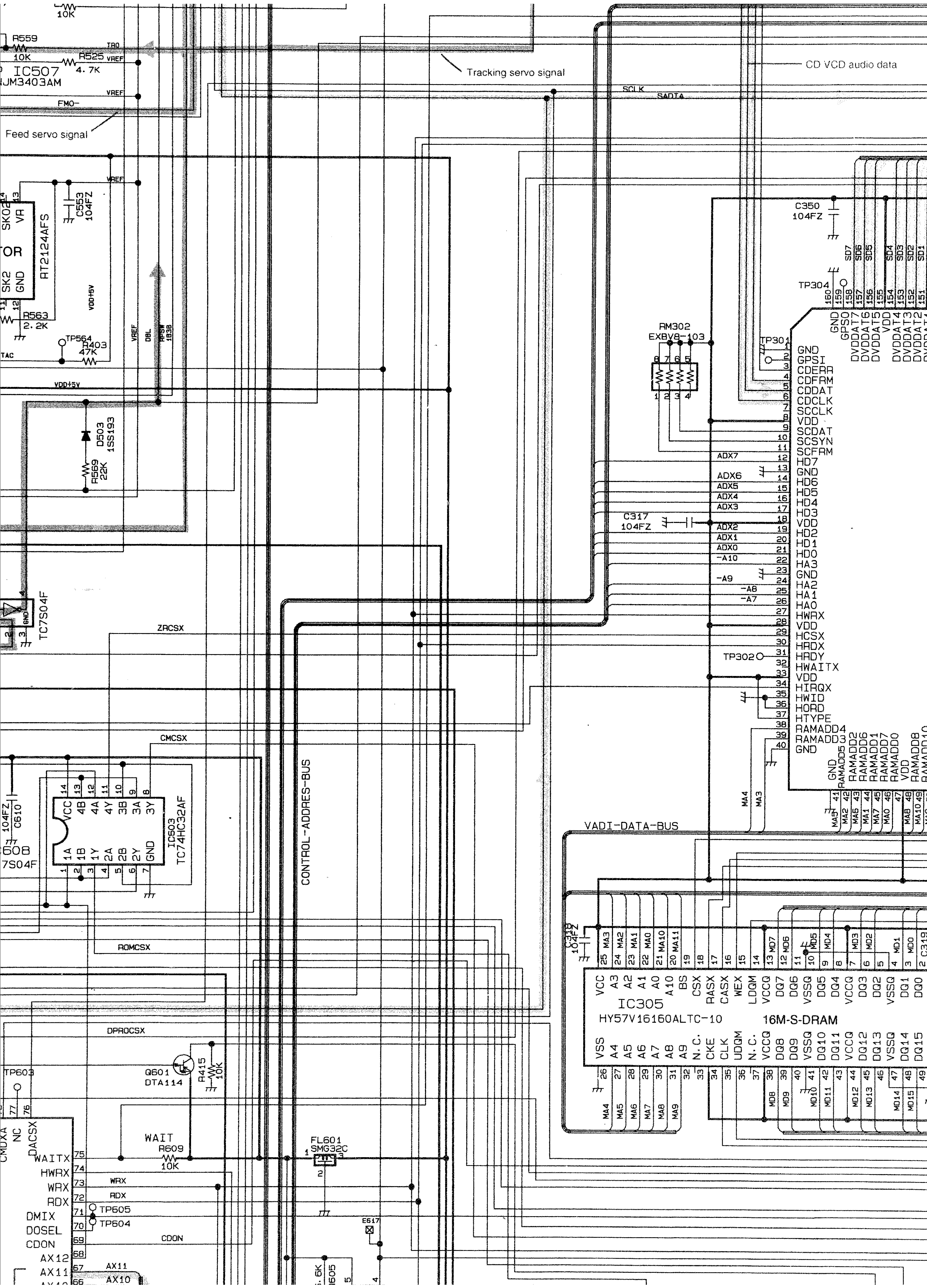
IEC 958 data for DVD, VCD

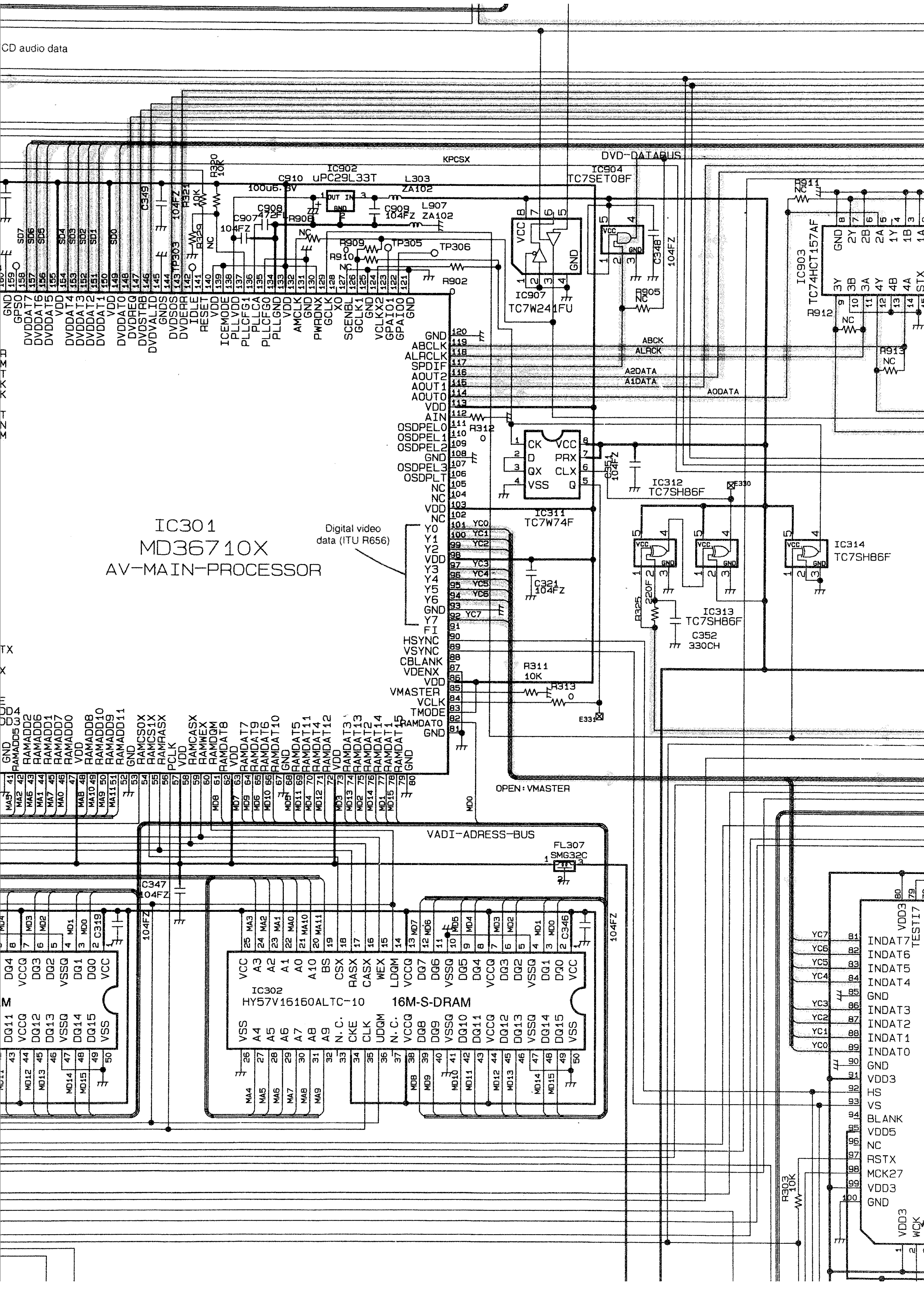
Selected IEC 958

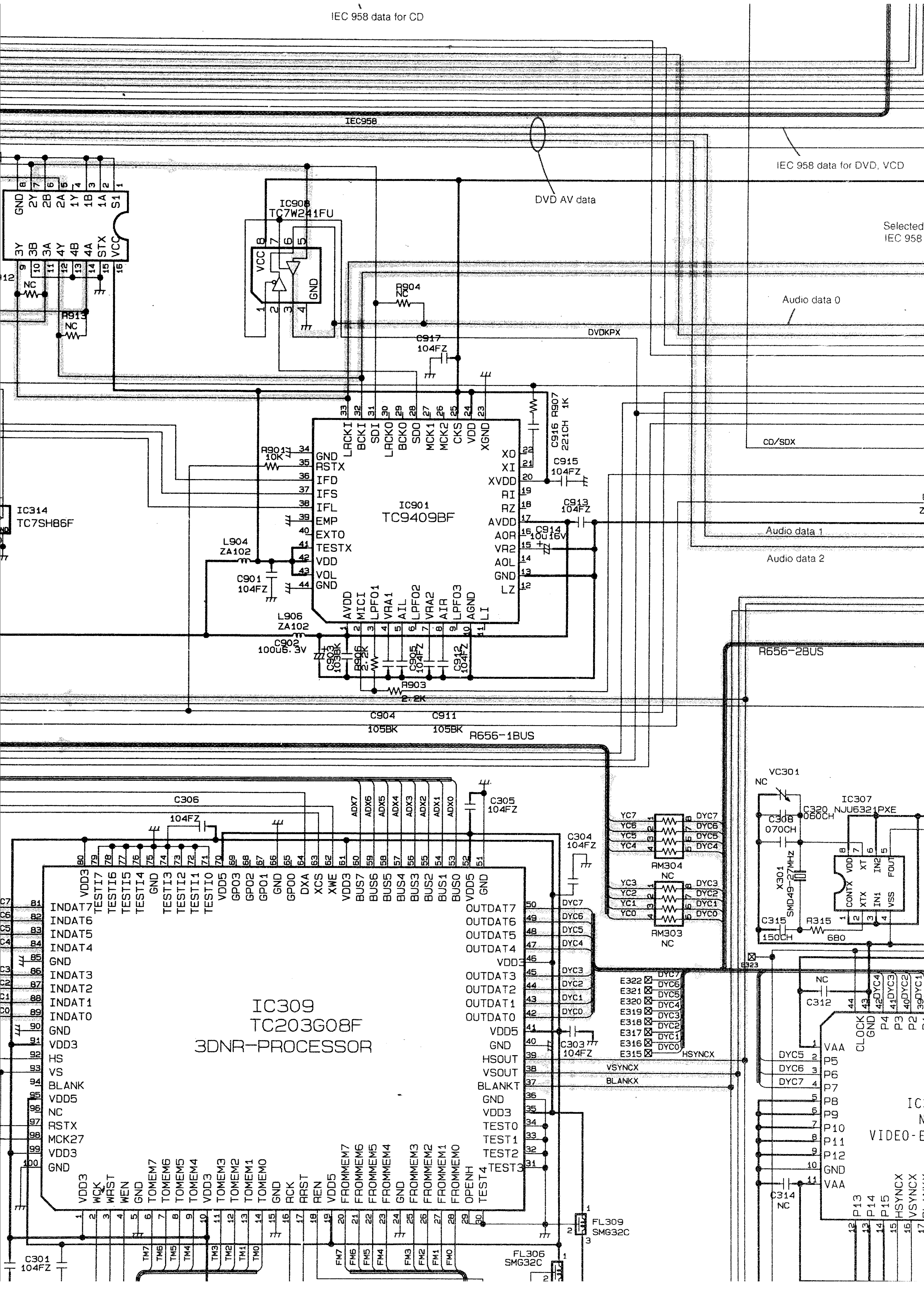
Audio data 0


10
11
12
A
B
C
IC201
TC90A41AF
DATA-PROCESSOR
ADX7
ADX6
ADX5
ADX4
ADX3
ADX2
ADX1
ADX0
DVSS2
HD7
HD6
HD5
HD4
HD3
HD2
HD1
HD0
HCEN
HDRD
HDWT
WAIT
DVDD1
DVSS1
SVCKO
SVCKI
DVDD1
DPCKI
DVSS1
UPWM
STCK
STDA
DVDD1
RSTN
SREQ
DVSS1
SOCK
SENB
SBGN
SERR
SD0
SD1
SD2
SD3
DVDD1
DVSS1
SD4
SD5
SD6
SD7
MD0
MD1
MD2
DVSS1
DVDD1
MA9
MA8
MA7
MA6
MA5
MA4
MA3
MA2
MA1
MA0
DVSS2
DVDD2
MD7
MD6
MD5
MD4
MD3
DA9
DA8
DA7
DA6
DA5
DA4
DA3
DA2
DA1
DA0
DD7
DD6
DD5
DD4
DD3
DD0
DD1
DD2
C214
104FZ
R227
1K
R226
1K
C227
100CH
221CH
C228
C245
104FZ
C246
104FZ
R220
10K
R221
10K
R208
47K
C213
104FZ
C212
104FZ
C211
104FZ
R230
330
C220
101CH
VCC
GND
IC204
TC7S32F
IC205
TC7S32F
IC202
uPD424800LE-70
VCC
MDAT0
MDAT1
MDAT2
MDAT3
NC
XMWRITE
XMRAS
MADD9
MADD0
MADD1
MADD2
MADD3
VCC
VSS
MDAT7
MDAT6
MDAT5
MDAT4
XMCAS
XMOE
NC
MADD8
MADD7
MADD6
MADD5
MADD4
VSS
C225
104FZ
4M-DRAM
IC906
TC7W241FU
104FZ
C918
VCC
GND
DATA
SELECTOR
Digital
audio data
IEC 958 data for DVD, VCD
Selected
IEC 958
RM903
EXBV8-330
RM904
EXBV8-330
RM905
EXBV8-101
Audio data 0
AUDIO-SIGNAL
I/F
CN901
52808-2510
E901
E902
E903
E904
E905
E906
E907
E908
E909
E910
E911
E912
E913
IEC958OUT
AGND
AUDIO-MCK
AGND
LRCK
BCK
ADATA0
AGND
SDATA
SCLK
DA1CSX
RSTX

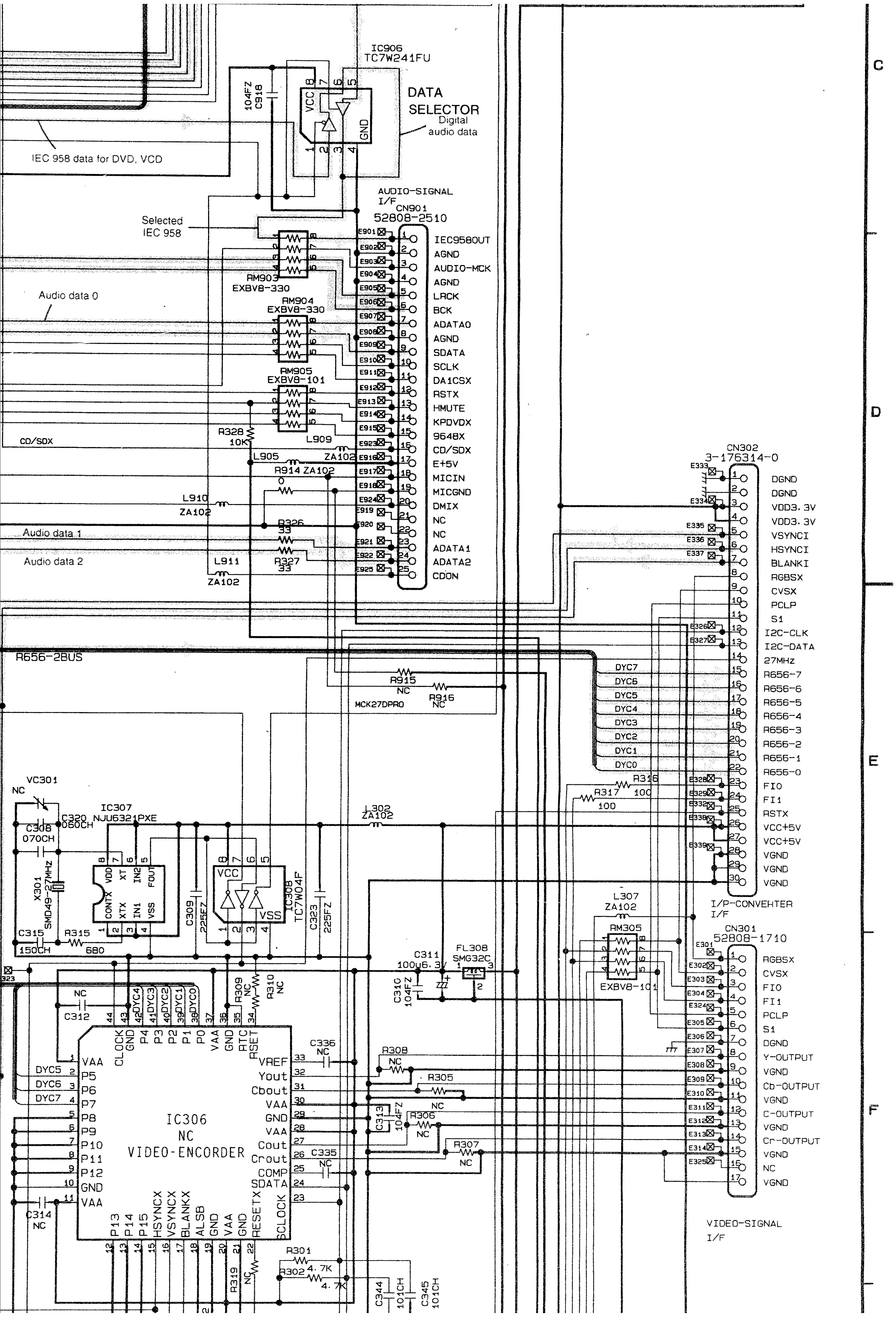

C
D
E
F
ACTUATOR DR
MUT
GND
IN2-
IN2
02P
02N
OPO
VCC
IN3-
IN3
03P
03N
CP+
CP-
IC507
NJM3403AM
TC74HC4053AF
INH
VEE
VSS
IC508
TC7S66F
Feed drive
Feed speed signal
Feed servo signal
Feed velocity detection hole sensor
Q502
RN1411
L601
ZA121
IC509
VELOCITY DETECTOR
RT2124AFS
VDD H2P H2N OT2 D2I D2O CT1 OTS 2VR SKO1 SKO2 VR
H1P H1N OT1 D1I D1O ADL ADN ARE CTO SK1 SK2 GND
PUTAC
VDD+5V
DISC-MOTOR-I/F
CN502
52808-1910
FMP
FMN
ADL
GND
HO2N
HO1N
HO1P
HO2P
V+
W+
U+
W-
V-
H-
U-
H+
U
V
W
DM DRV
IC510
BA6844FP
N.C.
RNF
VM
VCC
FG
PS
EC
ECR
FR
CNF
VH
U+
U-
V+
V-
W+
W-
FL502
SMG32C
DVD/CD control signal
D503
1SS193
TP528
TP529
Q506
HN1B01F
IC516
TC7S04F
SD/CDX
Disc motor hole sensor
EE-PROM
IC613
A0 A1 A2 VSS
VCC TEST SCL SDA
S24C01AFS-01
TCLS
TOPN
Loading motor control signal
IC608
TC7S04F
RS232C-I/F BOTTOM
CN603
53398-0610
GND
5V
TXD
CTS
RXD
RTS
RM603
EXBV8-101
RS232C-I/F TOP
CN601
53398-0610
RM604
EXBV8-101
RAMCSX
TP607
TP606
TP603
VREFH ZRSI CTS RXD TCLS TOPN DSPSI FCSERR SBADD VSS DSPSO DSPCK SO SCLK HMUTE S1X LDMN LDMP MEMCSX DPROCSX VASCSX CVSX CMDXA NC DACSX
VREFL
AVSS
AVCC
VSYNC
RFCSX
DPCNTL
PROMCK
PROMDA
WAITX
HWRX
WRX
RDX
DMIX
DOSEL
CDON
AX12
Serial data
IC601
TXD
CTS

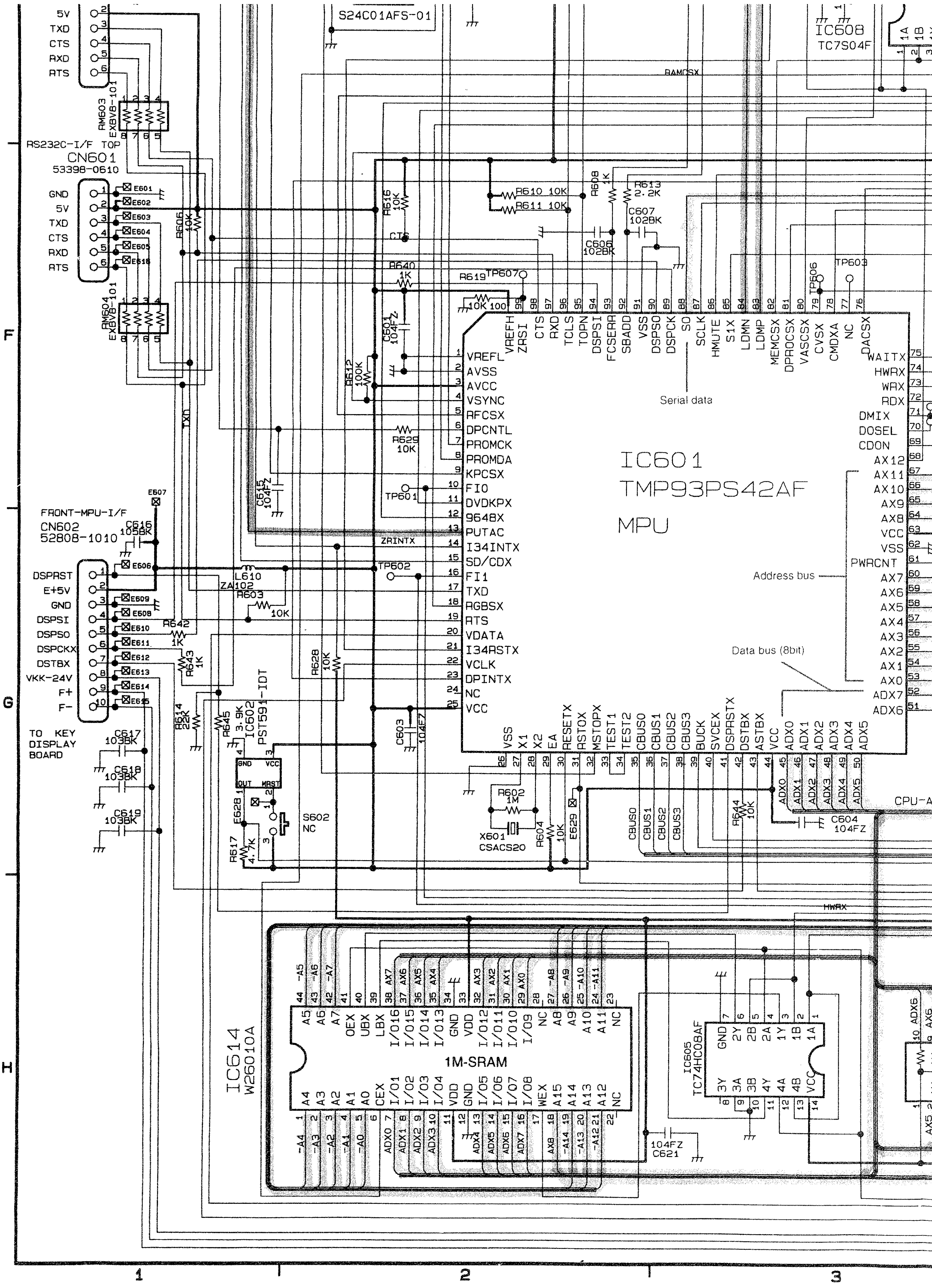

10K
R559
10K
R525
4.7K
IC507
NJM3403AM
TRO
VREF
VREF
FMO-
Feed servo signal
Tracking servo signal
CD VCD audio data
SCLK
SADTA
VREF
C553
104FZ
SKO2
VR
RT2124AFS
TOR
SK2
GND
VDD+5V
R563
2.2K
TP564
R403
47K
TAC
VREF
DBL
RFSW
1838
VDD+5V
D503
1SS193
R569
22K
TC7S04F
GND
ZRCSX
CMCSX
104FZ
C610
C608
TC7S04F
IC503
TC74HC32AF
VCC
4B
4A
4Y
3B
3A
3Y
1A
1B
1Y
2A
2B
2Y
GND
ROMCSX
DPROCSX
Q601
DTA114
R415
10K
TP603
CMDXA
NC
DACSX
WAITX
HWRX
WRX
RDX
DMIX
DOSEL
CDON
AX12
AX11
WAIT
R609
10K
WRX
RDX
TP605
TP604
CDON
AX11
AX10
FL601
SMG32C
E617
CONTROL-ADDRES-BUS
RM302
EXBV8-103
C350
104FZ
TP304
TP301
C317
104FZ
TP302
GND
GPSI
CDERR
CDFRM
CDDAT
CDCLK
SCCLK
VDD
SCDAT
SCSYN
SCFRM
HD7
GND
HD6
HD5
HD4
HD3
VDD
HD2
HD1
HD0
HA3
GND
HA2
HA1
HA0
HWRX
VDD
HCSX
HRDX
HRDY
HWAITX
VDD
HIRQX
HWID
HORD
HTYPE
RAMADD4
RAMADD3
GND
ADX7
ADX6
ADX5
ADX4
ADX3
ADX2
ADX1
ADX0
-A10
-A9
-A8
-A7
GND
GPSO
DVDDAT7
DVDDAT6
DVDDAT5
VDD
DVDDAT4
DVDDAT3
DVDDAT2
SD7
SD6
SD5
SD4
SD3
SD2
SD1
GND
RAMADD5
RAMADD2
RAMADD6
RAMADD1
RAMADD7
RAMADD0
VDD
RAMADD8
MA4
MA3
VADI-DATA-BUS
C318
104FZ
IC305
HY57V16160ALTC-10
16M-S-DRAM
VCC
A3
A2
A1
A0
A10
BS
CSX
RASX
CASX
WEX
LDQM
VCCQ
DQ7
DQ6
VSSQ
DQ5
DQ4
VCCQ
DQ3
DQ2
VSSQ
DQ1
DQ0
VSS
A4
A5
A6
A7
A8
A9
N.C.
CKE
CLK
UDQM
N.C.
VCCQ
DQ8
DQ9
VSSQ
DQ10
DQ11
VCCQ
DQ12
DQ13
VSSQ
DQ14
DQ15
MA3
MA2
MA1
MA0
MA10
MA11
MD7
MD6
MD5
MD4
MD3
MD2
MD1
MD0
C319
MA4
MA5
MA6
MA7
MA8
MA9
MD8
MD9
MD10
MD11
MD12
MD13
MD14
MD15
MA5
MA2
MA6
MA1
MA7
MA0
MA8
MA10
5.6K
R605

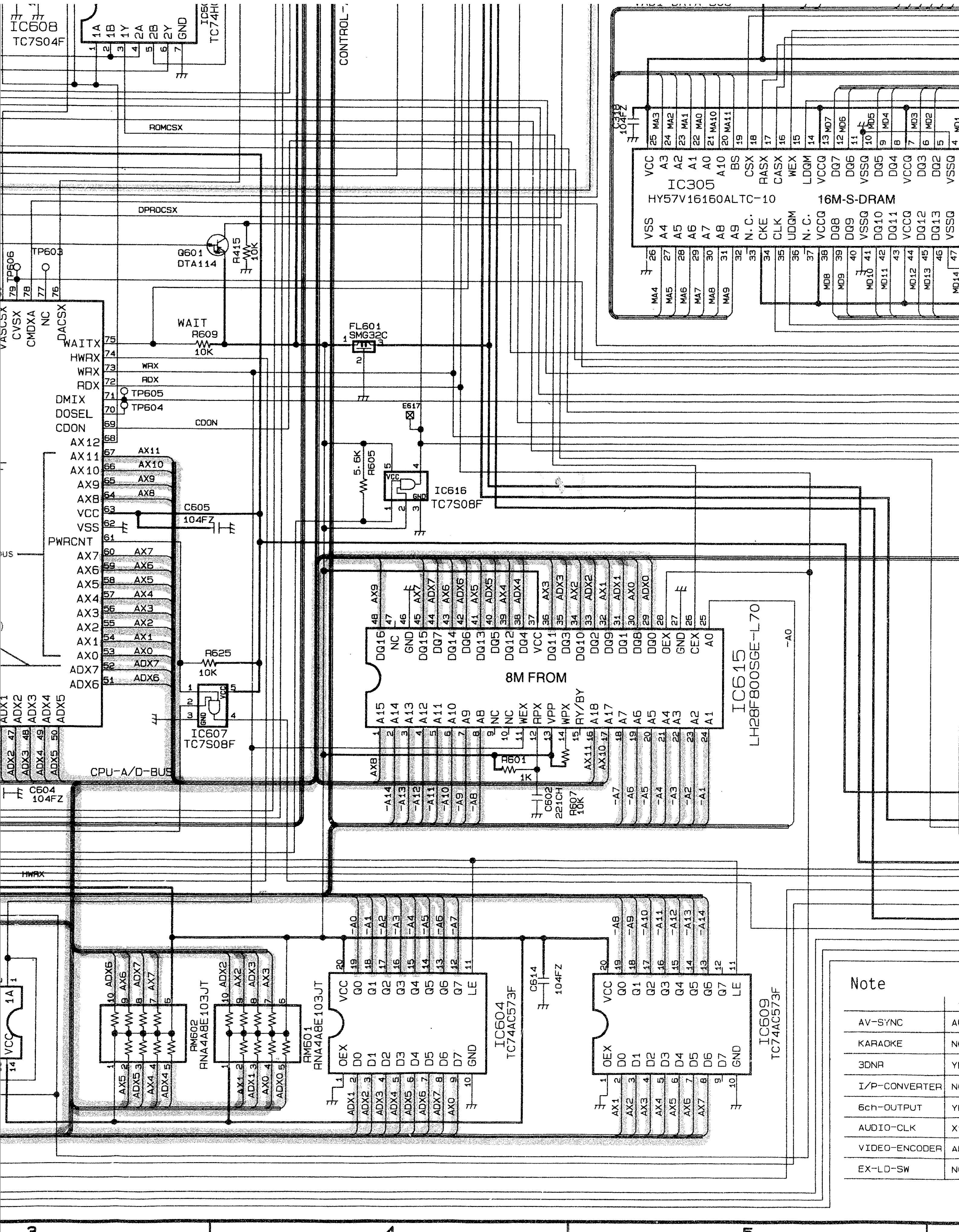

CD audio data
KPCSX
DVD-DATABUS
IC902
uPC29L33T
C910
100u6.3V
L303
ZA102
C908
472FL
C907
104FZ
C909
104FZ
L907
ZA102
R908
R909
R910
TP305
TP306
TP303
R902
R320
10K
R321
10K
R329
C349
104FZ
IC904
TC7SET08F
IC907
TC7W241FU
C348
104FZ
R905
ZN
IC903
TC74HCT157AF
R911
NC
R912
NC
R913
NC
ABCK
ALRCK
A2DATA
A1DATA
AODATA
IC301
MD36710X
AV-MAIN-PROCESSOR
Digital video data (ITU R656)
GND
GPSO
DVDDAT7
DVDDAT6
DVDDAT5
VDD
DVDDAT4
DVDDAT3
DVDDAT2
DVDDAT1
DVDDAT0
DVDREQ
DVDSTRB
DVDVALID
GNDS
DVDSOS
DVDERR
IDLE
RESET
ICEMODE
PLLVDD
PLLCFG1
PLLCA
PLLCFG0
PLLGND
AMCLK
PWRDNX
GCLK
XO
SCENBL
GCLK1
VCLKX2
GPAIO1
GPAIO0
ABCLK
ALRCLK
SPDIF
AOUT2
AOUT1
AOUT0
AIN
OSDPEL0
OSDPEL1
OSDPEL2
OSDPEL3
OSDPLT
NC
Y0
Y1
Y2
Y3
Y4
Y5
Y6
Y7
FI
HSYNC
VSYNC
CBLANK
VDENX
VMASTER
VCLK
TMODE
RAMDAT0
R312
IC311
TC7W74F
CK
D
QX
VSS
VCC
PRX
CLX
Q
C351
104FZ
IC312
TC7SH86F
E330
IC313
TC7SH86F
IC314
TC7SH86F
R325
220F
C352
330CH
C321
104FZ
R311
10K
R313
E331
YC0
YC1
YC2
YC3
YC4
YC5
YC6
YC7
OPEN: VMASTER
RAMADD5
RAMADD2
RAMADD6
RAMADD1
RAMADD7
RAMADD0
RAMADD8
RAMADD10
RAMADD9
RAMADD11
RAMCS0X
RAMCS1X
RAMRASX
PCLK
RAMCASX
RAMWEX
RAMDQM
RAMDAT8
RAMDAT7
RAMDAT9
RAMDAT6
RAMDAT10
RAMDAT5
RAMDAT11
RAMDAT4
RAMDAT12
RAMDAT3
RAMDAT13
RAMDAT2
RAMDAT14
RAMDAT1
RAMDAT15
VADI-ADRESS-BUS
FL307
SMG32C
C347
104FZ
C319
C346
104FZ
IC302
HY57V16160ALTC-10
16M-S-DRAM
VCC
A3
A2
A1
A0
A10
BS
CSX
RASX
CASX
WEX
LDQM
VCCQ
DQ7
DQ6
VSSQ
DQ5
DQ4
DQ3
DQ2
DQ1
DQ0
VSS
A4
A5
A6
A7
A8
A9
N.C.
CKE
CLK
UDQM
DQ8
DQ9
DQ10
DQ11
DQ12
DQ13
DQ14
DQ15
INDAT7
INDAT6
INDAT5
INDAT4
INDAT3
INDAT2
INDAT1
INDAT0
VDD3
HS
VS
BLANK
VDD5
RSTX
MCK27
TESTI7
WCK
R303
10K

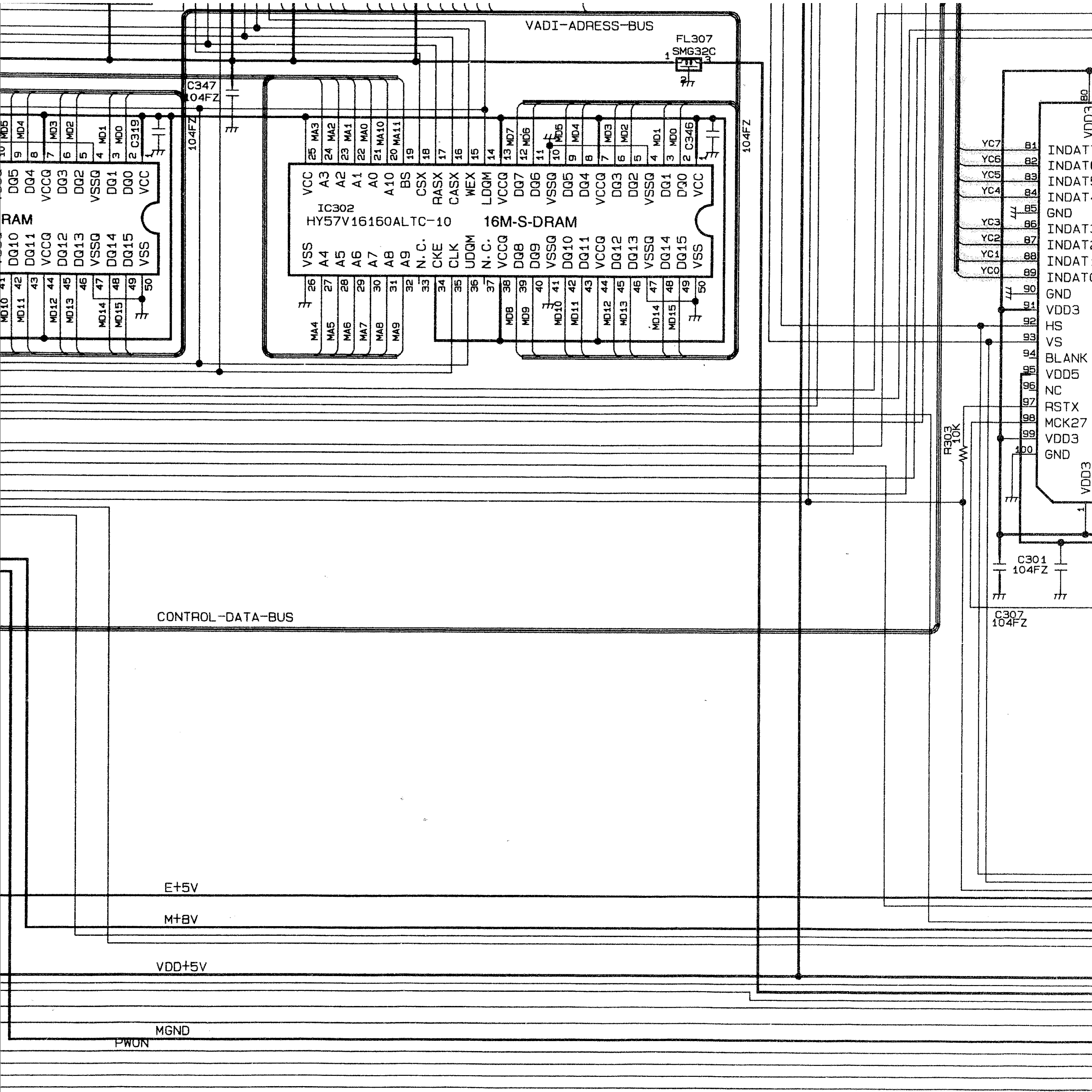


IEC 958 data for CD
IEC958
IEC 958 data for DVD, VCD
DVD AV data
Selected IEC 958
Audio data 0
Audio data 1
Audio data 2
DVDKPX
CD/SDX
IC908
TC7W241FU
VCC
GND
R904 NC
C917 104FZ
R913 NC
NC
IC314
TC7SH86F
GND 2Y 2B 2A 1Y 1B 1A S1
3Y 3B 3A 4Y 4B 4A STX VCC
IC901
TC9409BF
LRCKI BCKI SDI LRCKO BCKO SDO MCK1 MCK2 CKS VDD XGND
GND RSTX IFD IFS IFL EMP EXTO TESTX VDD VOL GND
XO XI XVDD RI RZ AVDD AOR VR2 AOL GND LZ
AVDD MICI LPFO1 VRA1 AIL LPFO2 VRA2 AIR LPFO3 AGND LI
R901 10K
R907 1K
C916 221CH
C915 104FZ
C913 104FZ
C914 10U16V
L904 ZA102
C901 104FZ
L906 ZA102
C902 100U6.3V
C903 103BK
R906 2.2K
C905 104FZ
C912 104FZ
R903 2.2K
C904 105BK
C911 105BK
R656-1BUS
R656-2BUS
C306 104FZ
C305 104FZ
C304 104FZ
ADX7 ADX6 ADX5 ADX4 ADX3 ADX2 ADX1 ADX0
IC309
TC203G08F
3DNR-PROCESSOR
VDD3 TESTI7 TESTI6 TESTI5 TESTI4 GND TESTI3 TESTI2 TESTI1 TESTI0 VDD5 GPO3 GPO2 GPO1 GND GPO0 DXA XCS XWE VDD3 BUS7 BUS6 BUS5 BUS4 BUS3 BUS2 BUS1 BUS0 VDD5 GND
INDAT7 INDAT6 INDAT5 INDAT4 GND INDAT3 INDAT2 INDAT1 INDAT0 GND VDD3 HS VS BLANK VDD5 NC RSTX MCK27 VDD3 GND
OUTDAT7 OUTDAT6 OUTDAT5 OUTDAT4 VDD3 OUTDAT3 OUTDAT2 OUTDAT1 OUTDAT0 VDD5 GND HSOUT VSOUT BLANKT GND VDD3 TEST0 TEST1 TEST2 TEST3
VDD3 WCK WRST WEN GND TOMEM7 TOMEM6 TOMEM5 TOMEM4 VDD3 TOMEM3 TOMEM2 TOMEM1 TOMEM0 GND RCK RRST REN VDD5 FROMMEM7 FROMMEM6 FROMMEM5 FROMMEM4 GND FROMMEM3 FROMMEM2 FROMMEM1 FROMMEM0 OPENH TEST4
TM7 TM6 TM5 TM4 TM3 TM2 TM1 TM0
FM7 FM6 FM5 FM4 FM3 FM2 FM1 FM0
C303 104FZ
C301 104FZ
FL309 SMG32C
FL306 SMG32C
YC7 YC6 YC5 YC4 YC3 YC2 YC1 YC0
DYC7 DYC6 DYC5 DYC4 DYC3 DYC2 DYC1 DYC0
RM304 NC
RM303 NC
E322 E321 E320 E319 E318 E317 E316 E315
E323
HSYNCX
VSYNCX
BLANKX
VC301 NC
C308 070CH
C320 060CH
IC307 NJU6321PXE
X301 SMD49-27MHz
VDD XT IN2 FOUT
CONTX XTX IN1 VSS
C315 150CH
R315 680
NC
C312
C314 NC
VAA P5 P6 P7 P8 P9 P10 P11 P12 GND VAA
CLOCK GND P4 P3 P2
P13 P14 P15 HSYNCX VSYNCX
VIDEO-E


C
D
E
F
IC906
TC7W241FU
DATA
SELECTOR
Digital
audio data
104FZ
C918
VCC
GND
IEC 958 data for DVD, VCD
Selected
IEC 958
AUDIO-SIGNAL
I/F
CN901
52808-2510
RM903
EXBV8-330
Audio data 0
RM904
EXBV8-330
RM905
EXBV8-101
R328
10K
CD/SDX
L909
ZA102
L905
R914 ZA102
0
L910
ZA102
Audio data 1
R326
33
Audio data 2
R327
33
L911
ZA102
IEC958OUT
AGND
AUDIO-MCK
AGND
LRCK
BCK
ADATA0
AGND
SDATA
SCLK
DA1CSX
RSTX
HMUTE
KPDVDX
9648X
CD/SDX
E+5V
MICIN
MICGND
DMIX
NC
NC
ADATA1
ADATA2
CDON
CN302
3-176314-0
DGND
DGND
VDD3.3V
VDD3.3V
VSYNCI
HSYNCI
BLANKI
RGBSX
CVSX
PCLP
S1
I2C-CLK
I2C-DATA
27MHz
R656-7
R656-6
R656-5
R656-4
R656-3
R656-2
R656-1
R656-0
FI0
FI1
RSTX
VCC+5V
VCC+5V
VGND
VGND
VGND
I/P-CONVERTER
I/F
R656-2BUS
R915
NC
R916
NC
MCK27DPRO
DYC7
DYC6
DYC5
DYC4
DYC3
DYC2
DYC1
DYC0
R316
100
R317
100
VC301
NC
C308
070CH
C320
060CH
IC307
NJU6321PXE
X301
SMD49-27MHz
VDD
XT
IN2
FOUT
CONTX
XTX
IN1
VSS
C315
150CH
R315
680
C309
225FZ
VCC
VSS
IC308
TC7W04F
C323
225FZ
L302
ZA102
C311
100u6.3V
FL308
SMG32C
C310
104FZ
L307
ZA102
RM305
EXBV8-101
CN301
52808-1710
RGBSX
CVSX
FI0
FI1
PCLP
S1
DGND
Y-OUTPUT
VGND
Cb-OUTPUT
VGND
C-OUTPUT
VGND
Cr-OUTPUT
VGND
NC
VGND
VIDEO-SIGNAL
I/F
NC
C312
R309
NC
R310
NC
IC306
NC
VIDEO-ENCORDER
CLOCK
GND
P4
P3
P2
P1
P0
VAA
GND
RTC
RSET
VAA
P5
P6
P7
P8
P9
P10
P11
P12
GND
VAA
VREF
Yout
Cbout
VAA
GND
VAA
Cout
Crout
COMP
SDATA
SCLOCK
P13
P14
P15
HSYNCX
VSYNCX
BLANKX
ALSB
GND
VAA
GND
RESETX
C336
NC
R308
NC
R305
C313
104FZ
R306
NC
R307
NC
C335
NC
C314
NC
R319
NC
R301
4.7K
R302
4.7K
C344
101CH
C345
101CH


5V
TXD
CTS
RXD
RTS
S24C01AFS-01
IC608
TC7S04F
RAMCSX
RM603
EXBV8-101
RS232C-I/F TOP
CN601
53398-0610
GND
5V
TXD
CTS
RXD
RTS
E601
E602
E603
E604
E605
E618
R606
10K
R616
10K
R610 10K
R611 10K
R608
1K
R613
2.2K
C607
102BK
C606
102BK
CTS
R640
1K
R619
TP607
TP606
TP603
10K 100
C601
104FZ
RM604
EXBV8-101
R612
100K
F
VREFL
AVSS
AVCC
VSYNC
RFCSX
DPCNTL
PROMCK
PROMDA
KPCSX
FIO
DVDKPX
9648X
PUTAC
I34INTX
SD/CDX
FI1
TXD
RGBSX
RTS
VDATA
I34RSTX
VCLK
DPINTX
NC
VCC
VREFH
ZRSI
CTS
RXD
TCLS
TOPN
DSPSI
FCSERR
SBADD
VSS
DSPSO
DSPCK
SO
SCLK
HMUTE
S1X
LDMN
LDMP
MEMCSX
DPROCSX
VASCSX
CVSX
CMDXA
NC
DACSX
WAITX
HWRX
WRX
RDX
DMIX
DOSEL
CDON
AX12
AX11
AX10
AX9
AX8
VCC
VSS
PWRCNT
AX7
AX6
AX5
AX4
AX3
AX2
AX1
AX0
ADX7
ADX6
Serial data
IC601
TMP93PS42AF
MPU
Address bus
Data bus (8bit)
R629
10K
C615
104FZ
TP601
TXD
E607
FRONT-MPU-I/F
CN602
52808-1010
C616
105BK
ZRINTX
TP602
L610
ZA102
R603
10K
DSPRST
E+5V
GND
DSPSI
DSPSO
DSPCKX
DSTBX
VKK-24V
F+
F-
E606
E609
E608
E610
E611
E612
E613
E614
E615
R642
1K
R643
1K
R628
10K
G
R614
22K
R645
3.9K
IC602
PST591-IDT
GND
VCC
OUT
MRST
C603
104FZ
VSS
X1
X2
EA
RESETX
RSTOX
MSTOPX
TEST1
TEST2
CBUS0
CBUS1
CBUS2
CBUS3
BUCK
SVCEX
DSPRSTX
DSTBX
ASTBX
VCC
ADX0
ADX1
ADX2
ADX3
ADX4
ADX5
TO KEY DISPLAY BOARD
C617
103BK
C618
103BK
C619
103BK
E628
S602
NC
R617
4.7K
R602
1M
X601
CSACS20
R604
10K
E629
CBUS0
CBUS1
CBUS2
CBUS3
R644
10K
C604
104FZ
CPU-A
HWRX
IC614
W26010A
A5
A6
A7
OEX
UBX
LBX
I/O16
I/O15
I/O14
I/O13
GND
VDD
I/O12
I/O11
I/O10
I/O9
NC
A8
A9
A10
A11
NC
1M-SRAM
A4
A3
A2
A1
A0
CEX
I/O1
I/O2
I/O3
I/O4
VDD
GND
I/O5
I/O6
I/O7
I/O8
WEX
A15
A14
A13
A12
NC
IC605
TC74HC08AF
GND
2Y
2B
2A
1Y
1B
1A
3Y
3A
3B
4Y
4A
4B
VCC
104FZ
C621
H
ADX6
1
2
3


IC608
TC7S04F
CONTROL-
ROMCSX
DPROCSX
IC305
HY57V16160ALTC-10
16M-S-DRAM
C318
104FZ
TP606
TP603
Q601
DTA114
R415
10K
WAIT
R609
10K
FL601
SMG32C
WAITX
HWRX
WRX
RDX
DMIX
DOSEL
CDON
AX12
AX11
AX10
AX9
AX8
VCC
VSS
PWRCNT
AX7
AX6
AX5
AX4
AX3
AX2
AX1
AX0
ADX7
ADX6
TP605
TP604
E617
R605
5.6K
IC616
TC7S08F
C605
104FZ
R625
10K
IC607
TC7S08F
CPU-A/D-BUS
C604
104FZ
IC615
LH28F800SGE-L70
8M FROM
R601
1K
C602
221CH
R607
10K
HWRX
RM602
RNA4A8E103JT
RM601
RNA4A8E103JT
IC604
TC74AC573F
C614
104FZ
IC609
TC74AC573F
Note
AV-SYNC
KARAOKE
3DNR
I/P-CONVERTER
6ch-OUTPUT
AUDIO-CLK
VIDEO-ENCODER
EX-LD-SW
3
4
5


VADI-ADRESS-BUS
FL307
SMG32C
C347
104FZ
104FZ
C319
RAM
IC302
HY57V16160ALTC-10
16M-S-DRAM
VCC
A3
A2
A1
A0
A10
BS
CSX
RASX
CASX
WEX
LDQM
VCCQ
DQ7
DQ6
VSSQ
DQ5
DQ4
VCCQ
DQ3
DQ2
VSSQ
DQ1
DQ0
VCC
VSS
A4
A5
A6
A7
A8
A9
N.C.
CKE
CLK
UDQM
N.C.
VCCQ
DQ8
DQ9
VSSQ
DQ10
DQ11
VCCQ
DQ12
DQ13
VSSQ
DQ14
DQ15
VSS
MA0
MA1
MA2
MA3
MA4
MA5
MA6
MA7
MA8
MA9
MA10
MA11
MD0
MD1
MD2
MD3
MD4
MD5
MD6
MD7
MD8
MD9
MD10
MD11
MD12
MD13
MD14
MD15
C346
104FZ
YC7
YC6
YC5
YC4
YC3
YC2
YC1
YC0
INDAT
GND
VDD3
HS
VS
BLANK
VDD5
NC
RSTX
MCK27
R303
10K
C301
104FZ
C307
104FZ
CONTROL-DATA-BUS
E+5V
M+8V
VDD+5V
MGND
PWON

ote

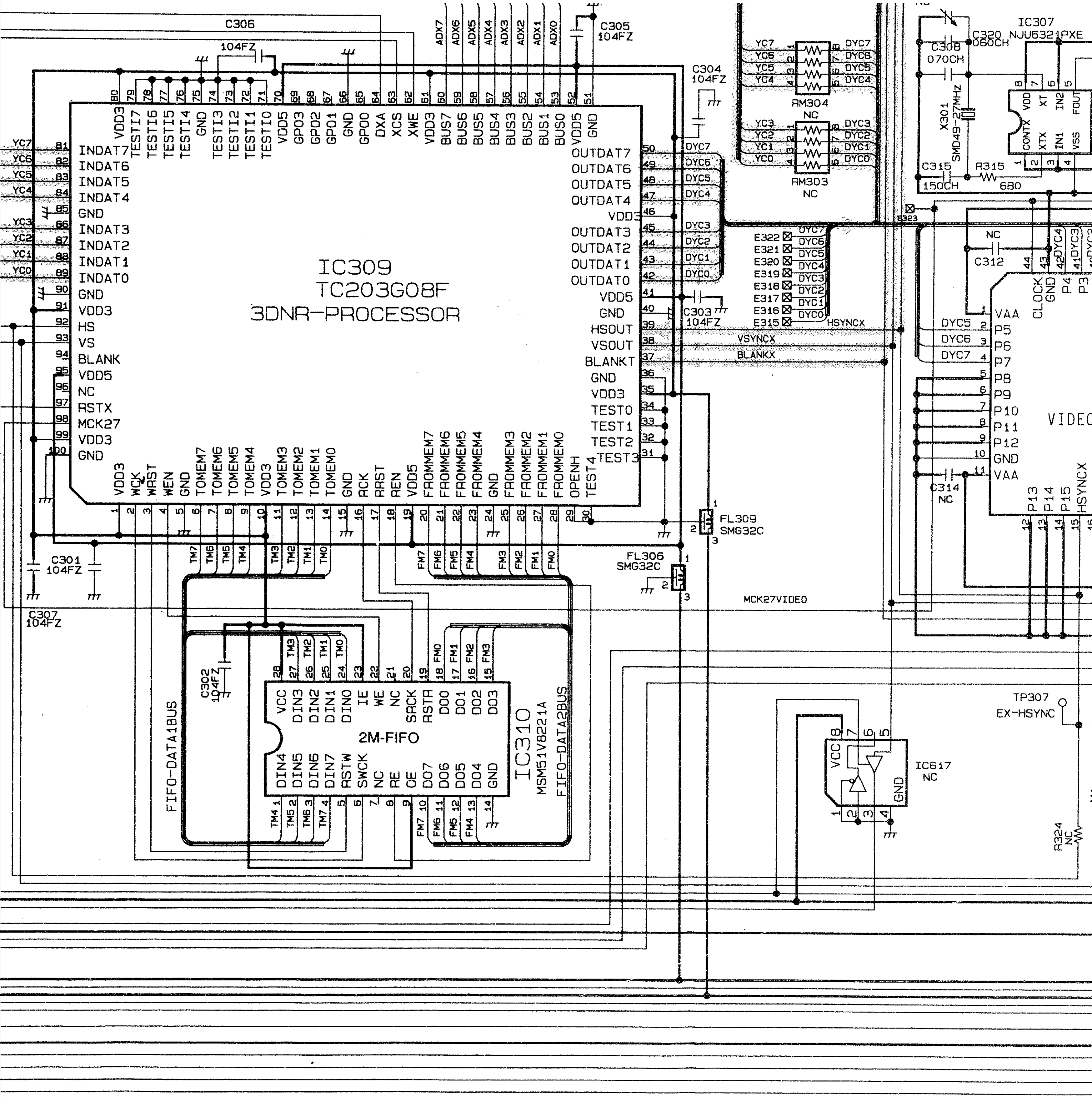
	SD3108	SD9000	SD-K320	SD-2108ASIA	SD-P420
V-SYNC	AUDIO-MASTER	AUDIO-MASTER	AUDIO-MASTER	VIDEO-MASTER	VIUDEO-MASTER
ARAOKE	NO	NO	YES	NO	NO
DNR	YES	YES	NO	NO	NO
/P-CONVERTER	NO	NO	NO	NO	NO
ch-OUTPUT	YES	YES	YES	NO	NO
UDIO-CLK	Xtal-OSC	Xtal-osc	Xtal-OSC	VADIS-VCO	VADIS-VCO
IDEO-ENCODER	ADV7170	ADV7172	ADV7170	ADV7170	ADV7170
X-LD-SW	NO	NO	NO	NO	YES

with-KARAOKE	same this schematic
without-KARAOKE	the following parts is NC
	IC901 IC903 IC908 L904 L906 R901 R903 R906 R907 C901 C903 C904 C905 C911 C912 C914 C916 C913 C902 C915 C917
	the following parts is 0 ohme
	R911 R912 R913 R904

EX-LD-SW	R443, 444, 445, 914=NC
	R441, 442, 915, 916=0

with-3

withou


C306
104FZ
C305
104FZ
C304
104FZ
ADX7
ADX6
ADX5
ADX4
ADX3
ADX2
ADX1
ADX0
IC309
TC203G08F
3DNR-PROCESSOR
VDD3
TESTI7
TESTI6
TESTI5
TESTI4
GND
TESTI3
TESTI2
TESTI1
TESTI0
VDD5
GP03
GP02
GP01
GND
GP00
DXA
XCS
XWE
VDD3
BUS7
BUS6
BUS5
BUS4
BUS3
BUS2
BUS1
BUS0
VDD5
GND
INDAT7
INDAT6
INDAT5
INDAT4
GND
INDAT3
INDAT2
INDAT1
INDAT0
GND
VDD3
HS
VS
BLANK
VDD5
NC
RSTX
MCK27
VDD3
GND
OUTDAT7
OUTDAT6
OUTDAT5
OUTDAT4
VDD3
OUTDAT3
OUTDAT2
OUTDAT1
OUTDAT0
VDD5
GND
HSOUT
VSOUT
BLANKT
GND
VDD3
TEST0
TEST1
TEST2
TEST3
TEST4
OPENH
WCK
WRST
WEN
GND
TOMEM7
TOMEM6
TOMEM5
TOMEM4
VDD3
TOMEM3
TOMEM2
TOMEM1
TOMEM0
GND
RCK
RRST
REN
VDD5
FROMMEM7
FROMMEM6
FROMMEM5
FROMMEM4
GND
FROMMEM3
FROMMEM2
FROMMEM1
FROMMEM0
YC7
YC6
YC5
YC4
YC3
YC2
YC1
YC0
DYC7
DYC6
DYC5
DYC4
DYC3
DYC2
DYC1
DYC0
RM304
NC
RM303
NC
E322
E321
E320
E319
E318
E317
E316
E315
E323
C303
104FZ
HSYNCX
VSYNCX
BLANKX
FL309
SMG32C
FL306
SMG32C
MCK27VIDEO
C301
104FZ
C307
104FZ
C302
104FZ
TM7
TM6
TM5
TM4
TM3
TM2
TM1
TM0
FM7
FM6
FM5
FM4
FM3
FM2
FM1
FM0
IC310
MSM51V8221A
2M-FIFO
VCC
DIN3
DIN2
DIN1
DIN0
IE
WE
NC
SRCK
RSTR
DO0
DO1
DO2
DO3
DIN4
DIN5
DIN6
DIN7
RSTW
SWCK
NC
RE
OE
DO7
DO6
DO5
DO4
GND
FIFO-DATA1BUS
FIFO-DATA2BUS
IC307
NJU6321PXE
C320
060CH
C308
070CH
X301
SMD49-27MHz
VDD
XT
IN2
FOUT
CONTX
XTX
IN1
VSS
C315
150CH
R315
680
NC
C312
CLOCK
GND
P4
P3
VAA
P5
P6
P7
P8
P9
P10
P11
P12
GND
VAA
C314
NC
VIDEO
P13
P14
P15
HSYNCX
TP307
EX-HSYNC
IC617
NC
VCC
GND
R324
NC

with-3DNR	same this schematic
without-3DNR	the following parts is NC IC309 IC310 C301 C302 C303 C304 C305 C306 C307 R303 FL306 FL309
	the following parts is ELE change R323 R324 =0 ohme RM303 RM304 =EXBV8-330

L906

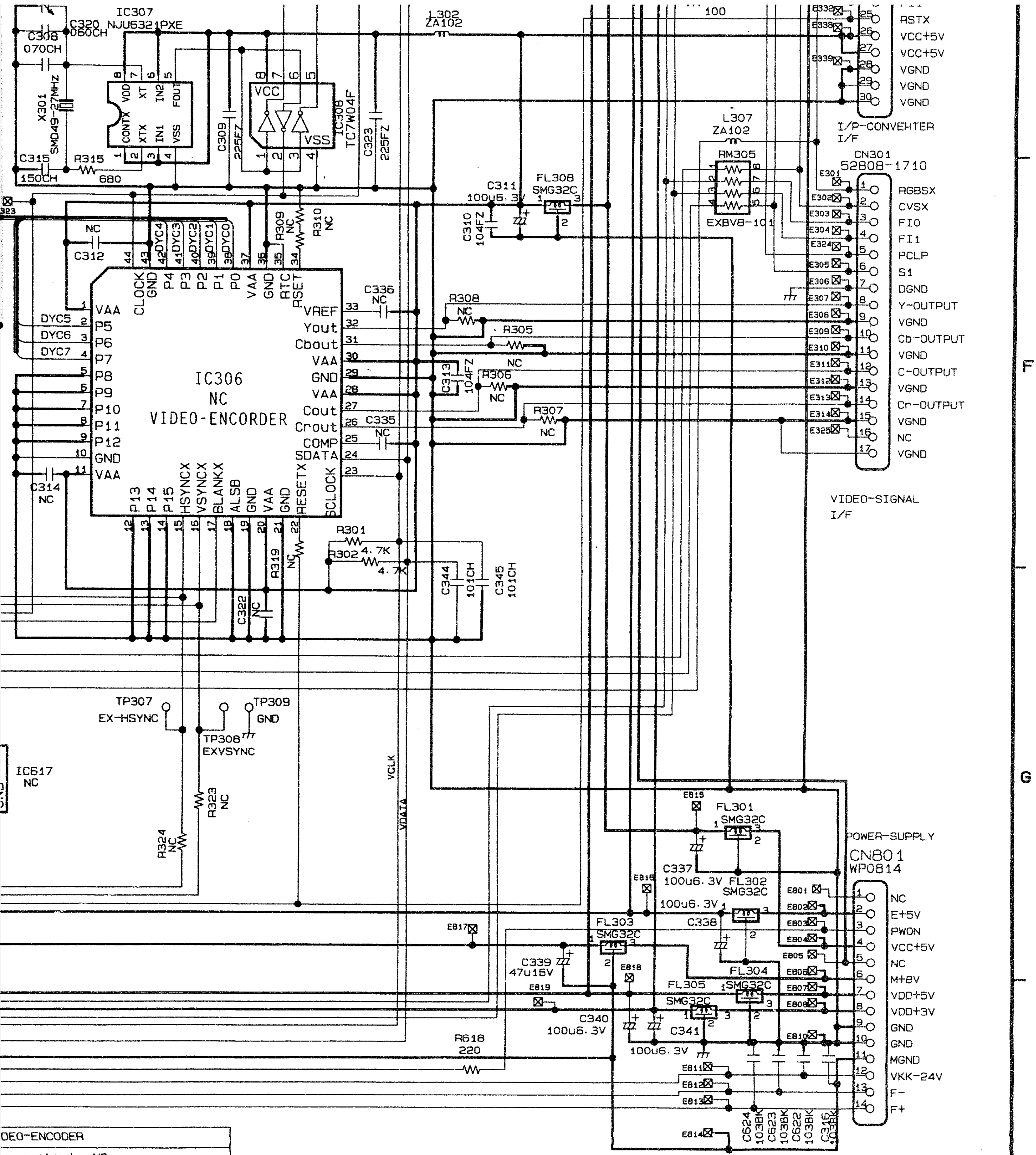
ohme

without-I/P-CONVERTER
CN302=NC R316, R317=NC IC617=NC

without-6ch-OUTPUT
CN901=52808-1910
R326, R327, L910, L911=NC

VIDEO-MASTER-AV-SYNC
R329, R908, R910=0
R909=NC IC907=NC

ADV7172-VIDEO-ENCODER
The following parts is NC
IC306 C312, 313, 314 C322, 335, 336 R305, 306, 307, 308, 309, 310, 319


IC307
NJU6321PXE
C320
060CH
C308
070CH
X301
SMD49-27MHz
VDD
XT
IN2
FOUT
CONTX
XTX
IN1
VSS
C315
150CH
R315
680
C309
225FZ
VCC
VSS
IC308
TC7W04F
C323
225FZ
L302
ZA102
C311
100u6.3V
FL308
SMG32C
C310
104FZ
L307
ZA102
RM305
EXBV8-101
100
RSTX
VCC+5V
VCC+5V
VGND
VGND
VGND
I/P-CONVERTER
I/F
CN301
52808-1710
RGBSX
CVSX
FIO
FI1
PCLP
S1
DGND
Y-OUTPUT
VGND
Cb-OUTPUT
VGND
C-OUTPUT
VGND
Cr-OUTPUT
VGND
NC
VGND
VIDEO-SIGNAL
I/F
E301
E302
E303
E304
E324
E305
E306
E307
E308
E309
E310
E311
E312
E313
E314
E325
E332
E338
E339
NC
C312
R309
NC
R310
NC
DYC4
DYC3
DYC2
DYC1
DYC0
CLOCK
GND
P4
P3
P2
P1
P0
VAA
GND
RTC
RSET
DYC5
DYC6
DYC7
VAA
P5
P6
P7
P8
P9
P10
P11
P12
GND
VAA
IC306
NC
VIDEO-ENCORDER
VREF
Yout
Cbout
VAA
GND
VAA
Cout
Crout
COMP
SDATA
SCLOCK
C336
NC
C335
NC
R308
NC
R305
NC
C313
104FZ
R306
NC
R307
NC
C314
NC
P13
P14
P15
HSYNCX
VSYNCX
BLANKX
ALSB
GND
VAA
GND
RESETX
R301
4.7K
R302
4.7K
R319
NC
C344
101CH
C345
101CH
C322
NC
TP307
EX-HSYNC
TP309
GND
TP308
EXVSYNC
IC617
NC
R323
NC
R324
NC
VCLK
VDATA
E815
FL301
SMG32C
C337
100u6.3V
E816
FL302
SMG32C
100u6.3V
C338
POWER-SUPPLY
CN801
WP0814
NC
E+5V
PWON
VCC+5V
NC
M+8V
VDD+5V
VDD+3V
GND
GND
MGND
VKK-24V
F-
F+
E801
E802
E803
E804
E805
E806
E807
E808
E810
E811
E812
E813
E814
E817
FL303
SMG32C
C339
47u16V
E818
E819
FL304
SMG32C
FL305
SMG32C
C340
100u6.3V
C341
100u6.3V
R618
220
C624
103BK
C623
103BK
C622
103BK
C316
103BK

DEO-ENCODER
g parts is NC
313. 314 C322. 335. 336 08. 309. 310. 319

NC: Not used.

10 11 12

F

G

H

Fig. 3-5-5

5-4. Output Circuit Diagram 810-9901

Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location
CNX01	A9	CX06	A12	CX33	J9	CY03	C3	CY30	B4	CY61	H5
CNX02	J10	CX07	B12	CX34	J10	CY04	C4	CY31	A4	CY62	G5
CNY01	C1	CX08	B13	CX35	J13	CY05	D4	CY32	A5	CY63	H5
CNY02	G8	CX09	B13	CX36	J15	CY06	D4	CY36	B2	CY64	G6
CNY03	B5	CX10	B13	CX37	J13	CY07	E4	CY37	B2	CY65	H15
CW01	L5	CX11	B15	CX38	J15	CY08	E4	CY38	B2	CY66	G5
CW02	G2	CX12	B15	CX39	J14	CY09	E2	CY39	B3	CY67	J5
CW03	A4	CX13	C15	CX40	H15	CY10	C4	CY41	B4	CY68	H15
CW04	A4	CX14	D12	CX41	K13	CY11	D4	CY42	E5	CY69	K2
CW05	C2	CX15	C13	CX42	J14	CY12	E4	CY43	D6	CY70	K3
CW06	C2	CX16	B13	CX43	K13	CY13	E4	CY44	D7	CY71	M2
CW07	C2	CX17	C15	CX45	K14	CY14	C5	CY45	E7	CY72	K4
CW08	A6	CX18	D15	CX46	J15	CY15	C5	CY46	G3	CY73	K4
CW09	B7	CX19	D15	CX47	K15	CY16	C5	CY47	J2	CY74	L4
CW10	F2	CX20	D15	CX49	L13	CY17	C5	CY48	H4	CY75	L4
CW11	E4	CX21	E15	CX52	K15	CY18	E5	CY49	H4	CY76	K4
CW12	J2	CX22	E15	CX53	K14	CY19	E5	CY50	G4	CY77	K4
CW13	L2	CX23	E15	CX54	G15	CY20	E5	CY51	G4	CY78	L4
CW14	B6	CX24	E11	CX55	G15	CY21	E5	CY52	G4	CY79	L4
CW15	B2	CX25	E12	CX56	H15	CY22	D5	CY53	G4	CY80	K5
CW16	C2	CX26	F15	CX57	H15	CY23	D5	CY54	H4	CY81	K5
CW17	C2	CX27	G15	CX58	H15	CY24	D5	CY55	H4	CY82	K5
CX01	A10	CX28	F15	CX59	E15	CY25	C7	CY56	G5	CY83	L5
CX02	B11	CX29	H10	CX60	B12	CY26	E7	CY57	G5	CY84	L5
CX03	B11	CX30	H11	CX61	J10	CY27	D7	CY58	G5	CY85	L5
CX04	A12	CX31	H13	CY01	C3	CY28	D8	CY59	H5	CY86	K5
CX05	B11	CX32	H14	CY02	C3	CY29	B4	CY60	H5	CY87	M5

Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location
CY88	K5	EX02	A9	EX29	F15	EY12	D1	EY39	H7	FLX02	C11
CY89	L5	EX03	A9	EX30	F15	EY13	E1	EY40	H7	FLX03	C11
CY90	K6	EX04	B9	EX31	F16	EY14	E1	EY41	J7	FLX04	C11
CY91	L5	EX05	B9	EX32	H15	EY15	E1	EY42	J7	FLX05	D11
CY92	G8	EX06	B9	EX33	G16	EY16	E1	EY43	G5	FLX06	K12
CY93	G7	EX07	B9	EX34	H15	EY17	E1	EY44	H5	FLX07	L12
CY94	H8	EX08	B9	EX35	G15	EY18	E4	EY45	K5	FLX08	J12
CY95	H7	EX09	B9	EX36	G15	EY19	E4	EY46	L5	FLY01	B7
CY96	H8	EX10	B9	EX37	H15	EY20	D6	EY47	J4	FLY02	B7
CY97	H7	EX11	B9	EX38	J11	EY21	E5	EY48	M4	FLY03	B5
CY98	J8	EX12	B10	EX39	J11	EY22	A5	EY49	E1	ICX71	H14
CY99	J7	EX13	B10	EX40	J11	EY23	B8	EY50	E1	ICX72	J14
DX01	G10	EX14	B14	EX41	K11	EY24	B8	EY51	E1	ICX91	C13
DX02	G11	EX15	A13	EX42	J13	EY25	A6	EY52	E1	ICX92	F12
DX03	H13	EX16	B12	EX43	K13	EY26	A6	EY53	E1	ICX93	H10
DX04	H14	EX17	C11	EX44	L13	EY27	F8	EY54	A6	ICY01	D3
DX05	F10	EX18	C12	EY01	C1	EY28	F7	EY55	A6	ICY02	C3
DX06	G10	EX19	C11	EY02	D1	EY29	F7	EY56	J3	ICY03	D5
DX07	G10	EX20	D11	EY03	D1	EY30	F7	EY57	M3	ICY04	D7
DX08	C16	EX21	C16	EY04	D1	EY31	F7	EY58	F1	ICY05	C7
DX09	D16	EX22	D15	EY05	D1	EY32	E1	EY59	F4	ICY06	E7
DY01	D6	EX23	D15	EY06	D1	EY33	F7	EY60	J4	ICY07	E2
DY02	G2	EX24	E15	EY07	D1	EY34	G8	EY61	M4	ICY08	E3
DY03	F4	EX25	E15	EY08	D1	EY35	G7	EY62	F3	ICY09	C4
DY04	J2	EX26	E15	EY09	D1	EY36	G7	EY63	F3	ICY10	A6
DY05	L1	EX27	F15	EY10	D1	EY37	H7	EY64	G4	ICY11	A2
EX01	A9	EX28	F15	EY11	D1	EY38	H7	FLX01	B11	ICY15	A3

Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location
ICY17	H2	LY06	B4	QX27	F10	QY14	E6	RV14	D9	RV41	J11
ICY18	J3	LY07	A6	QX28	F12	QY15	F4	RV15	B10	RV42	K11
ICY19	J3	LY08	G2	QX29	H9	QY16	J4	RV16	C10	RV43	L11
ICY20	H3	LY09	J2	QX31	H11	QY17	M4	RV17	C10	RV44	K11
ICY21	H5	LY10	K4	QX33	H12	QY18	F3	RV18	D10	RV45	L11
ICY22	K2	LY11	G4	QX35	H13	QY19	G3	RV19	D9	RV46	G9
ICY23	M3	LY12	B3	QX37	J11	QY20	G3	RV20	A14	RV47	G10
ICY24	M3	QX01	B10	QX39	J13	QY21	G3	RV21	A14	RV48	G11
ICY25	L3	QX02	C10	QX42	K11	QY22	F4	RV22	A14	RV49	G11
ICY26	L5	QX03	D10	QX44	K13	QY23	F4	RV23	A14	RV50	G12
ICY27	A5	QX04	B12	QX47	L11	QY24	J3	RV24	A14	RV51	G12
ICY28	C2	QX05	C12	QX49	L13	QY25	K2	RV25	B14	RV52	G13
ICY29	C6	QX06	B12	QX52	A11	QY26	L2	RV26	B14	RV53	G14
ICY30	E6	QX07	B13	QX53	B11	QY27	M1	RV27	B14	RV54	J13
ICY31	F2	QX08	B14	QY01	E4	QY28	G7	RV28	B14	RV55	H14
ICY32	F3	QX10	C14	QY02	C8	QY29	C4	RV29	C14	RV57	J15
ICY33	B3	QX12	C14	QY03	E7	QY30	C3	RV30	C14	RV58	J15
JPY02	B5	QX14	D13	QY04	E7	RV01	K15	RV31	D14	RV59	K15
JX01	C16	QX15	D14	QY05	C6	RV02	K15	RV32	D14	RV60	K15
JX02	E16	QX16	E14	QY06	F5	RV03	K15	RV33	E14	RV96	C9
JX03	F16	QX18	F14	QY07	F6	RV05	F11	RV34	E14	RV97	A10
JY01	G8	QX20	F14	QY08	H6	RV06	A14	RV35	F14	RV98	A10
JY02	B6	QX22	F13	QY09	M4	RV07	A12	RV36	F14	RV99	D10
LY01	E1	QX23	E13	QY10	K6	RV10	B10	RV37	J11	RW01	K6
LY02	E2	QX24	E10	QY11	L6	RV11	C9	RV38	J11	RW02	K6
LY03	C3	QX25	F10	QY12	J4	RV12	C9	RV39	J11	RW03	L6
LY04	D4	QX26	F10	QY13	G6	RV13	D9	RV40	K11	RW04	L6

Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location
RW05	K6	RW33	H6	RX15	C11	RX42	B12	RX69	D15	RX96	D14
RW06	L6	RW34	J6	RX16	C11	RX43	C12	RX70	D15	RX97	D14
RW07	E5	RW35	L6	RX17	B11	RX44	B13	RX71	E10	RX98	D14
RW08	G3	RW36	M6	RX18	B11	RX45	C13	RX72	E10	RX99	E14
RW09	B4	RW37	G7	RX19	B12	RX46	C13	RX73	E10	RY01	A2
RW10	A5	RW38	F7	RX20	C12	RX47	C13	RX74	E10	RY02	D1
RW11	C3	RW39	C4	RX21	C12	RX48	C14	RX75	E10	RY03	D1
RW12	E6	RW40	C4	RX22	C12	RX49	D13	RX76	F10	RY04	D1
RW13	C7	RW41	C3	RX23	A11	RX50	D12	RX77	F9	RY05	D3
RW14	E7	RW42	C3	RX24	A11	RX51	D13	RX78	F10	RY06	C4
RW15	E3	RW44	A5	RX25	A11	RX52	E13	RX79	F10	RY07	E4
RW16	F3	RW45	F7	RX26	B12	RX53	A14	RX80	F10	RY08	C5
RW17	J2	RW46	F7	RX27	A12	RX54	B14	RX81	F10	RY09	E5
RW18	L1	RX01	A10	RX28	A12	RX55	B14	RX82	F12	RY10	D5
RW20	F2	RX02	A10	RX29	A12	RX56	B14	RX83	E12	RY11	E5
RW21	F7	RX03	B10	RX30	B12	RX57	B14	RX84	E12	RY12	D5
RW22	F7	RX04	B10	RX31	B12	RX58	B14	RX85	E13	RY13	E5
RW23	E3	RX05	B11	RX32	B12	RX59	C14	RX86	E13	RY14	C5
RW24	F3	RX06	C11	RX33	B13	RX60	C14	RX87	F13	RY15	E5
RW25	J3	RX07	C10	RX34	B13	RX61	C14	RX88	F13	RY16	D5
RW26	M3	RX08	C10	RX35	A12	RX62	D14	RX89	F13	RY17	E5
RW27	B6	RX09	C11	RX36	A13	RX63	D15	RX90	F13	RY18	C5
RW28	B6	RX10	C11	RX37	A13	RX64	C15	RX91	F13	RY19	E5
RW29	F5	RX11	D10	RX38	A13	RX65	C15	RX92	E13	RY20	D6
RW30	E4	RX12	D10	RX39	A13	RX66	D15	RX93	E13	RY21	E6
RW31	F4	RX13	D10	RX40	B13	RX67	D15	RX94	F13	RY22	C7
RW32	F5	RX14	D11	RX41	B12	RX68	D15	RX95	E13	RY23	E7

Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location
RY24	C7	RY54	F6	RY82	J8	RZ11	F15	RZ39	G10	RZ67	J15
RY25	E7	RY55	G3	RY83	J7	RZ12	G14	RZ40	G10	RZ68	J16
RY26	E7	RY56	G4	RY84	K3	RZ13	G14	RZ41	G10	RZ69	J16
RY27	D8	RY57	J4	RY85	K3	RZ14	F15	RZ42	G9	RZ70	J16
RY28	E8	RY58	G4	RY86	K4	RZ15	G15	RZ43	G9	RZ71	K16
RY29	D8	RY59	G5	RY87	M4	RZ16	G15	RZ44	J9	RZ74	J14
RY30	E8	RY60	H4	RY88	K4	RZ17	G15	RZ45	J9	RZ75	K13
RY31	D8	RY61	H4	RY89	K4	RZ18	G15	RZ46	J9	RZ76	K12
RY32	E8	RY62	G5	RY90	L4	RZ19	G15	RZ47	A10	RZ77	K12
RY33	B5	RY63	H5	RY91	L4	RZ20	G15	RZ48	J11	RZ78	K13
RY34	B5	RY64	G5	RY92	K5	RZ21	G15	RZ49	J11	RZ79	K12
RY35	A5	RY65	H5	RY93	L5	RZ22	G15	RZ50	J11	RZ80	K12
RY36	A5	RY66	G5	RY94	K5	RZ23	H15	RZ51	J11	RZ81	K13
RY37	A6	RY67	H5	RY95	L5	RZ24	H15	RZ52	J12	RZ82	K14
RY38	B6	RY68	G5	RY96	K5	RZ25	H15	RZ53	J14	RZ83	K13
RY39	D6	RY69	H5	RY97	L5	RZ26	H15	RZ54	J15	RZ84	K13
RY40	D7	RY70	G6	RY98	K5	RZ27	H15	RZ55	J15	RZ85	K11
RY41	F7	RY71	H6	RY99	L4	RZ28	G14	RZ56	J15	RZ86	K11
RY45	B2	RY72	G6	RZ01	E14	RZ29	G14	RZ57	J13	RZ87	K11
RY46	E7	RY73	H6	RZ02	E14	RZ30	G14	RZ58	J15	RZ91	L13
RY47	E6	RY74	G6	RZ03	F14	RZ31	G13	RZ59	J12	RZ92	L13
RY48	D7	RY75	J6	RZ04	F14	RZ32	G13	RZ60	J12	RZ93	K11
RY49	D7	RY76	G8	RZ05	F15	RZ33	H12	RZ61	J13	RZ94	K12
RY50	F5	RY77	G7	RZ06	E15	RZ34	G12	RZ62	J14	RZ96	L12
RY51	F5	RY78	H8	RZ07	E15	RZ35	G12	RZ63	J13	RZ97	L12
RY52	F6	RY79	H7	RZ08	E15	RZ36	G11	RZ64	J13	RZ98	L13
RY53	F6	RY80	H8	RZ09	E15	RZ37	G11	RZ65	J13	SY01	D7
		RY81	H7	RZ10	E15	RZ38	G11	RZ66	H15	XY02	B2

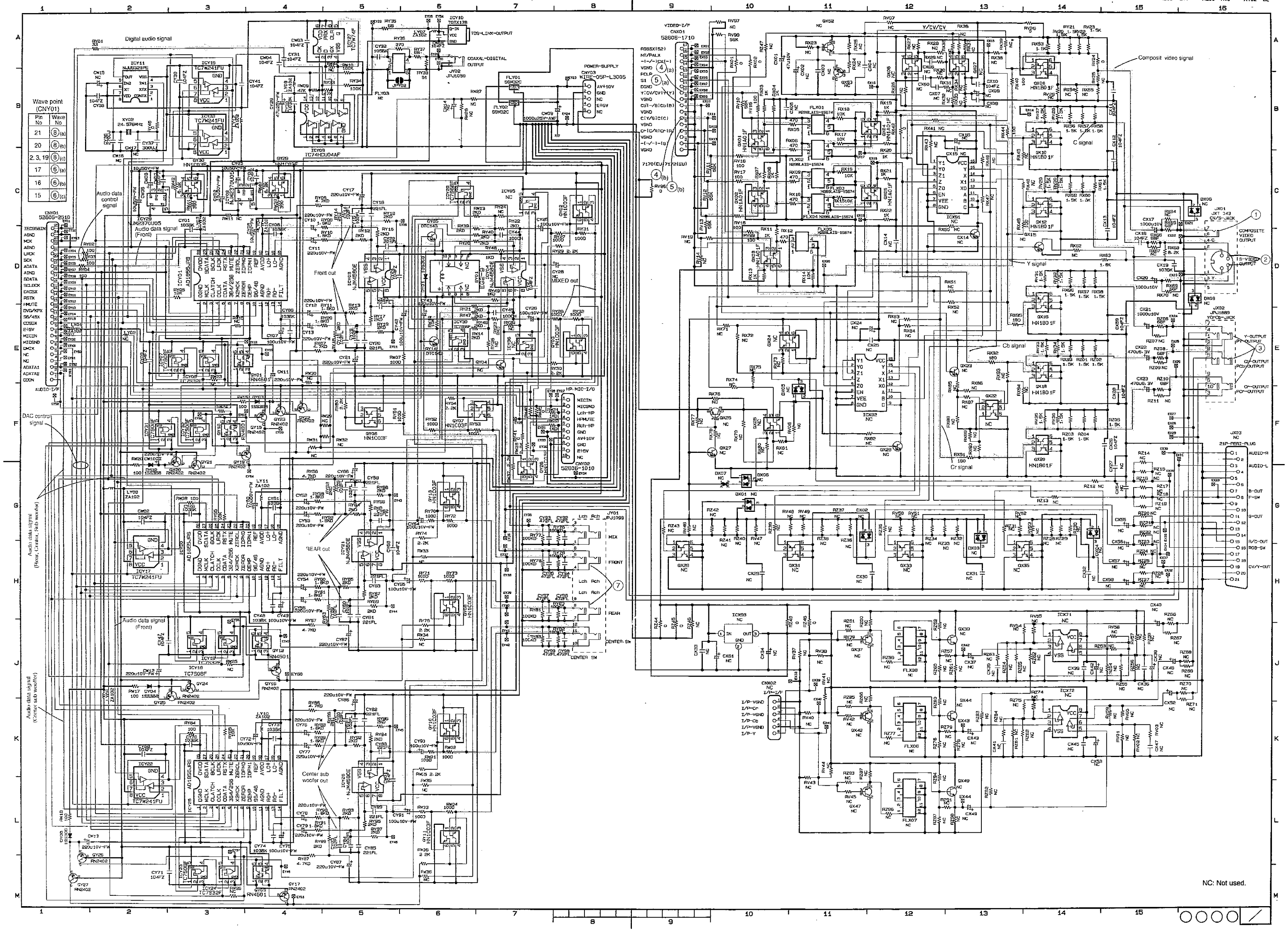


Fig. 3-5-6

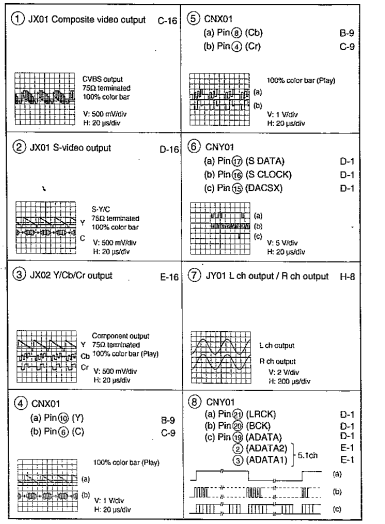


Fig. 3-5-7

IC

Pin	ICY01 DA CONVERTER	ICY20 DA CONVERTER	ICY25 DA CONVERTER
1	0	0	0
2	2.5	2.5	2.5
3	4.9	4.9	4.9
4	3.2	3.2	3.2
5	3.5	3.5	3.5
6	0	0	0
7	0	0	0
8	0	0	0
9	0	0	0
10	0	0	0
11	0	0	0
12	2.3	2.3	2.3
13	2.4	2.4	2.4
14	2.4	2.4	2.4
15	0	0	0
16	2.4	2.4	2.4
17	2.3	2.3	2.3
18	4.9	4.9	4.9
19	3.3	3.3	3.3
20	0	0	0
21	0	0	0
22	0	0	0
23	0	0	0
24	4.9	4.9	4.9
25	2.4	2.4	2.4
26	2.4	2.4	2.4
27	1.3	1.3	1.3
28	4.9	4.9	4.9

Pin	ICY02 REGURATOR	ICY07 AND GATE	ICY08 OR GATE	ICY18 AND GATE	ICY19 OR GATE	ICY23 AND GATE	ICY24 OR GATE	ICY28 REGURATOR	ICY29 SWITCH	ICY30 SWITCH	ICY31 AND GATE	ICY32 OR GATE
1	6.5	0	0	0	0	0	0	6.5	4.9	4.9	0	0
2	0	0	0	0	0	0	0	0	4.9	4.9	0	0
3	1.2	0	0	0	0	0	0	1.2	0	0	0	0
4	4.9	0	0	0	0	0	0	4.9	0	0	0	0
5	6.5	4.9	4.9	4.9	4.9	4.9	4.9	6.5	9.2	4.9	4.9	4.9

Pin	ICY03 OP AMP	ICY04 OP AMP	ICY11 OSCILLATOR	ICY15 3-STATE BUFFER	ICY17 3-STATE BUFFER	ICY21 OP AMP	ICY22 3-STATE BUFFER	ICY26 OP AMP	ICY27 D-FLIP-FLOP	ICY33 3-STATE BUFFER
1	4.9	4.9	4.9	0	4.7	4.9	4.7	4.9	2.6	0
2	4.9	4.9	0	0	0	4.9	0	4.9	2.5	0
3	4.9	4.9	0	0	1.3	4.9	1.3	4.9	2.5	0
4	4.9	0	0	0	0	0	0	0	0	0
5	4.9	4.9	0	0	1.3	4.9	1.3	4.9	2.5	0
6	4.9	4.9	4.9	2.5	1.3	4.9	1.3	4.9	4.9	2.5
7	4.9	4.9	2.5	4.9	4.7	4.9	4.7	4.9	4.9	4.9
8	9.2	9.2	4.9	4.9	4.9	9.2	4.9	9.2	4.9	4.9

Pin	ICY09 INVERTER
1	2.5
2	2.5
3	2.5
4	2.5
5	2.5
6	2.5
7	0
8	2.5
9	2.5
10	2.5
11	2.0
12	2.6
13	2.0
14	4.9

Pin	ICY10
D-IN	2.5
VCC	4.9
GND	0

Transistor

Pin	QY01 SWITCH	QY02 SWITCH	QY03 SWITCH	QY06 SWITCH	QY07 SWITCH	QY08 SWITCH	QY09 SWITCH	QY10 SWITCH	QY11 SWITCH	QY12 SWITCH	QY13 SWITCH	QY18 SWITCH
1	4.9	0	0	0	0	0	4.9	0	0	4.9	0	4.9
2	4.9	0	0	0	0	0	4.9	0	0	4.9	0	4.9
3	4.9	0	0	0	0	0	4.9	0	0	4.9	0	4.9
4	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0

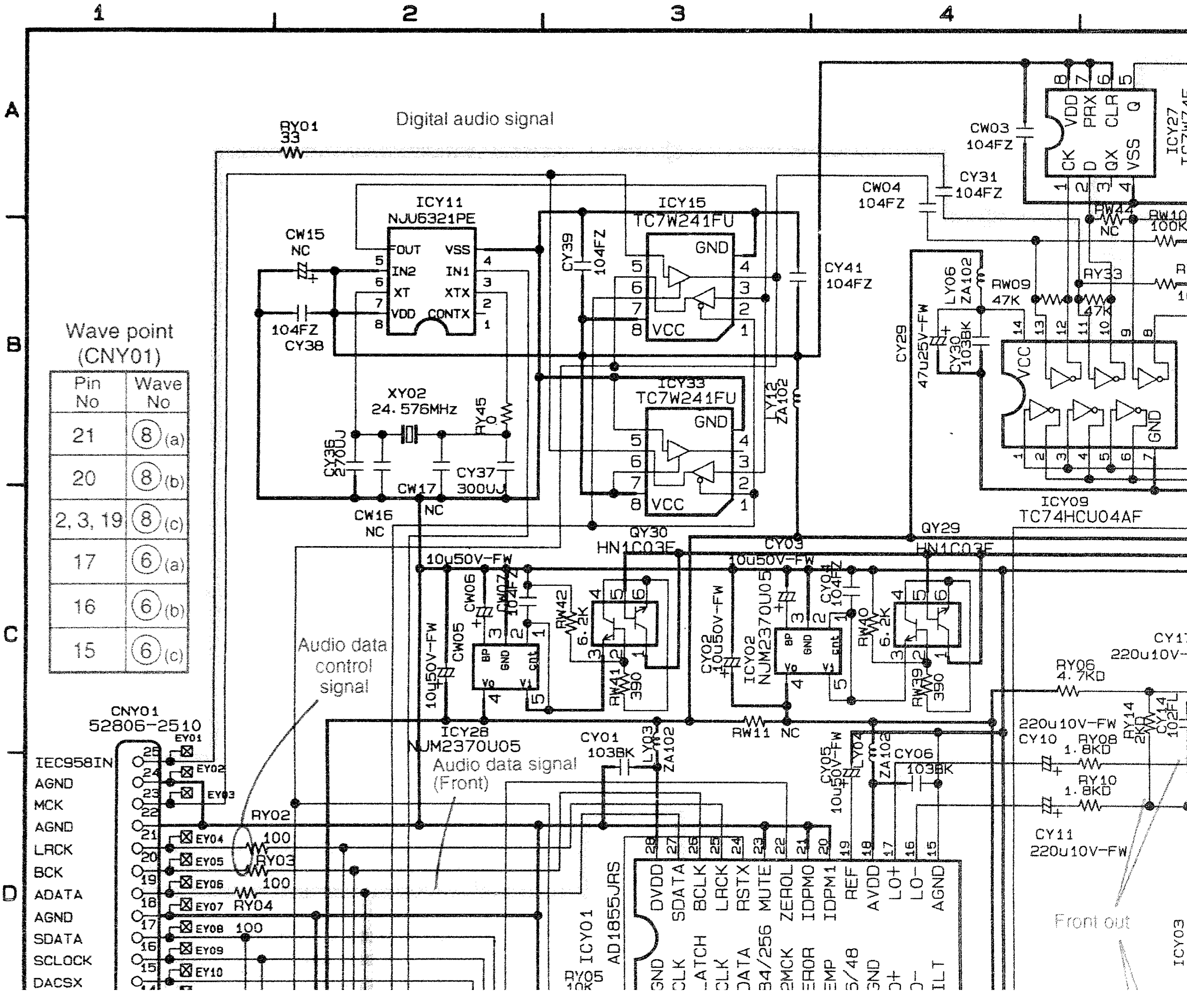
Pin	QY29 REGURATOR	QY30 REGURATOR	QX01 BUFFER	QX02 BUFFER	QX04 BUFFER	QX05 BUFFER	QX06 BUFFER	QX07 MIX AMP BUFFER	QX08 DRIVER	QX10 DRIVER	QX12 DRIVER	QX16 SWITCH	QX18 DRIVER	QX20 DRIVER	QX22 SWITCH
1	9.2	9.2	1.8	2.1	2.7	2.7	9.2	9.2	–	3.4	3.1	3.1	2.6	2.6	0
2	7.4	7.4	1.1	1.4	2.0	2.0	2.7	1.6	5.4	2.7	2.4	2.4	2.6	2.0	0.7
3	6.5	6.5	0	0	0	0	2.1	1.0	9.2	0	0	0	0	0	0
4	8.2	8.2	2.1	2.1	2.4	2.7	9.2	6.0	4.7	0	0	0	0	0	0
5	9.2	9.2	1.4	1.4	1.7	2.0	2.4	6.0	5.4	0	0	0	0	0	0.7
6	8.2	8.2	0	0	0	0	1.8	5.5	0	0	0	0	0	0	0

Pin	QY05 SWITCH	QY14 SWITCH	QY15 SWITCH	QY16 SWITCH	QY17 SWITCH	QY19 SWITCH	QY20 SWITCH	QY21 SWITCH	QY22 SWITCH	QY23 SWITCH	QY24 SWITCH	QY25 SWITCH	QY26 SWITCH	QY27 SWITCH	QX15 SWITCH	QX23 SWITCH
E	0	0	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	0	3.6
C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	–	9.2
B	4.7	4.7	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	0/3.3	4.9

5-4. Output Circuit Diagram

810-9901

Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location
CNX01	A9	CX06	A12	CX33	J9	CY03	C3	CY30	B4	CY61	H5	CY88	K5	EX02	A9
CNX02	J10	CX07	B12	CX34	J10	CY04	C4	CY31	A4	CY62	G5	CY89	L5	EX03	A9
CNY01	C1	CX08	B13	CX35	J13	CY05	D4	CY32	A5	CY63	H5	CY90	K6	EX04	B9
CNY02	G8	CX09	B13	CX36	J15	CY06	D4	CY36	B2	CY64	G6	CY91	L5	EX05	B9
CNY03	B8	CX10	B13	CX37	J13	CY07	E4	CY37	B2	CY65	H15	CY92	G8	EX06	B9
CW01	L5	CX11	B15	CX38	J15	CY08	E4	CY38	B2	CY66	G5	CY93	G7	EX07	B9
CW02	G2	CX12	B15	CX39	J14	CY09	E2	CY39	B3	CY67	J5	CY94	H8	EX08	B9
CW03	A4	CX13	C15	CX40	H15	CY10	C4	CY41	B4	CY68	H15	CY95	H7	EX09	B9
CW04	A4	CX14	D12	CX41	K13	CY11	D4	CY42	E5	CY69	K2	CY96	H8	EX10	B9
CW05	C2	CX15	C13	CX42	J14	CY12	E4	CY43	D6	CY70	K3	CY97	H7	EX11	B9
CW06	C2	CX16	B13	CX43	K13	CY13	E4	CY44	D7	CY71	M2	CY98	J8	EX12	B10
CW07	C2	CX17	C15	CX45	K14	CY14	C5	CY45	E7	CY72	K4	CY99	J7	EX13	B10
CW08	A6	CX18	D15	CX46	J15	CY15	C5	CY46	G3	CY73	K4	DX01	G10	EX14	B14
CW09	B7	CX19	D15	CX47	K15	CY16	C5	CY47	J2	CY74	L4	DX02	G11	EX15	A13
CW10	F2	CX20	D15	CX49	L13	CY17	C5	CY48	H4	CY75	L4	DX03	H13	EX16	B12
CW11	E4	CX21	E15	CX52	K15	CY18	E5	CY49	H4	CY76	K4	DX04	H14	EX17	C11
CW12	J2	CX22	E15	CX53	K14	CY19	E5	CY50	G4	CY77	K4	DX05	F10	EX18	C12
CW13	L2	CX23	E15	CX54	G15	CY20	E5	CY51	G4	CY78	L4	DX06	G10	EX19	C11
CW14	B6	CX24	E11	CX55	G15	CY21	E5	CY52	G4	CY79	L4	DX07	G10	EX20	D11
CW15	B2	CX25	E12	CX56	H15	CY22	D5	CY53	G4	CY80	K5	DX08	C16	EX21	C16
CW16	C2	CX26	F15	CX57	H15	CY23	D5	CY54	H4	CY81	K5	DX09	D16	EX22	D15
CW17	C2	CX27	G15	CX58	H15	CY24	D5	CY55	H4	CY82	K5	DY01	D6	EX23	D15
CX01	A10	CX28	F15	CX59	E15	CY25	C7	CY56	G5	CY83	L5	DY02	G2	EX24	E15
CX02	B11	CX29	H10	CX60	B12	CY26	E7	CY57	G5	CY84	L5	DY03	F4	EX25	E15
CX03	B11	CX30	H11	CX61	J10	CY27	D7	CY58	G5	CY85	L5	DY04	J2	EX26	E15
CX04	A12	CX31	H13	CY01	C3	CY28	D8	CY59	H5	CY86	K5	DY05	L1	EX27	F15
CX05	B11	CX32	H14	CY02	C3	CY29	B4	CY60	H5	CY87	M5	EX01	A9	EX28	F15

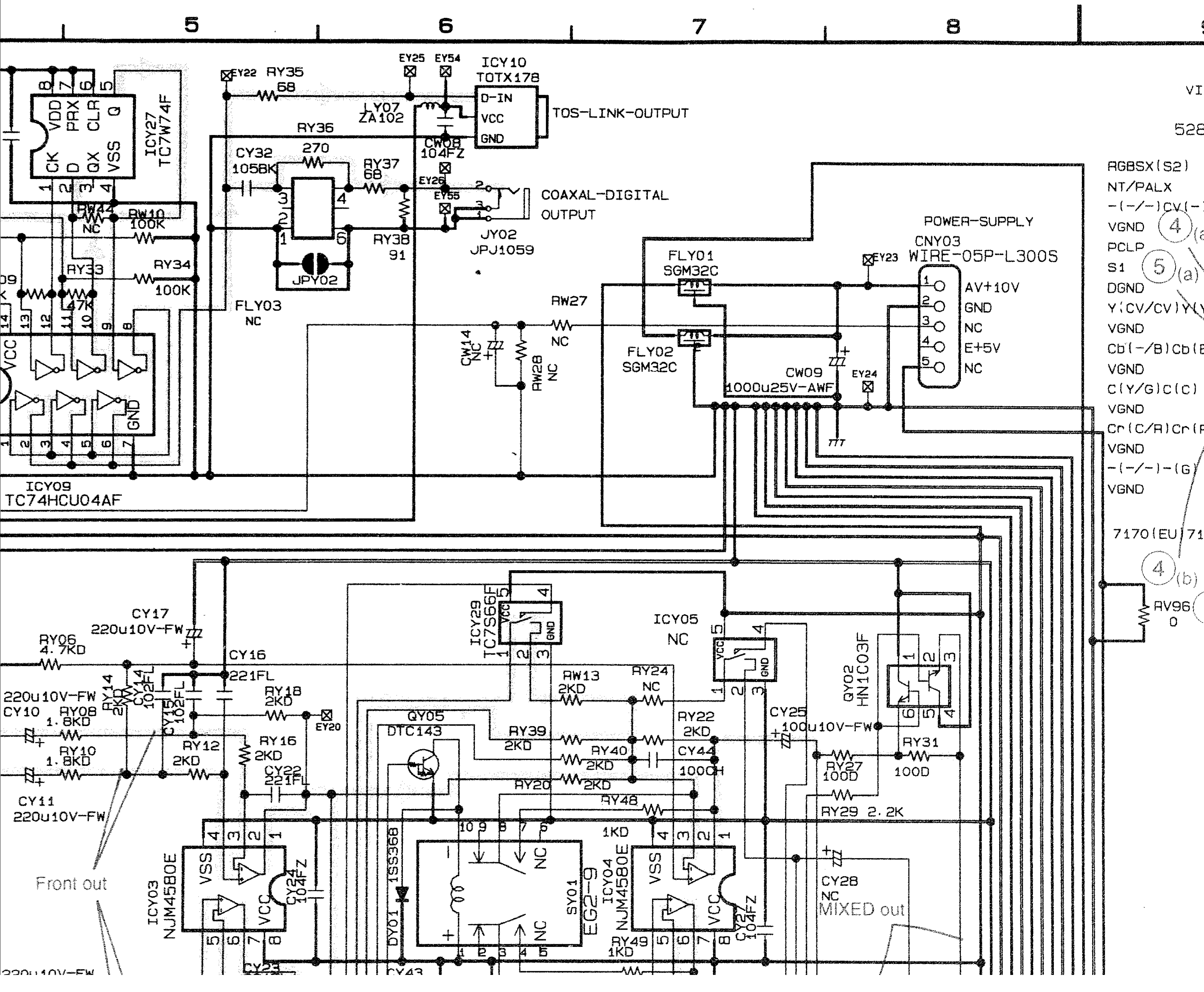


1
2
3
4
A
B
C
D
Digital audio signal
RY01
33
ICY11
NJU6321PE
OUT
VSS
IN2
IN1
XT
XTX
VDD
CONTX
CW15
NC
104FZ
CY38
CY39
104FZ
ICY15
TC7W241FU
GND
VCC
ICY33
TC7W241FU
CY41
104FZ
CW04
104FZ
CY31
104FZ
CW03
104FZ
ICY27
VDD
PRX
CLR
Q
CK
D
QX
VSS
RW42
NC
RW10
100K
RW09
47K
RY33
47K
LY06
ZA102
CY29
47u25V-FW
CY30
103BK
LY12
ZA102
XY02
24.576MHz
RY45
0
CY36
270UJ
CY37
300UJ
CW17
NC
CW16
NC
ICY09
TC74HCU04AF
VCC
GND
QY30
HN1C03F
QY29
HN1C03F
CY03
10u50V-FW
CW06
CW07
104FZ
CW05
10u50V-FW
RW42
6.2K
RW41
390
CY02
10u50V-FW
ICY02
NJM2370U05
CY04
104FZ
RW40
6.2K
RW39
390
BP
GND
Cnt
Vo
Vi
Audio data control signal
ICY28
NJM2370U05
Audio data signal (Front)
CY01
103BK
LY03
ZA102
RW11
NC
CY05
10u50V-FW
LY04
ZA102
CY06
103BK
RY06
4.7KΩ
CY17
220u10V-
220u10V-FW
CY10
RY08
1.8KΩ
RY14
2KΩ
CY14
102FL
RY10
1.8KΩ
CY11
220u10V-FW
Front out
CNY01
52806-2510
IEC958IN
AGND
MCK
AGND
LRCK
BCK
ADATA
AGND
SDATA
SCLOCK
DACSX
EY01
EY02
EY03
EY04
EY05
EY06
EY07
EY08
EY09
EY10
RY02
100
RY03
100
RY04
100
RY05
10K
ICY01
AD1855JRS
DVDD
SDATA
BCLK
LRCK
RSTX
MUTE
ZEROL
IDPM0
IDPM1
REF
AVDD
LO+
LO-
AGND
ICY03

Wave point (CNY01)

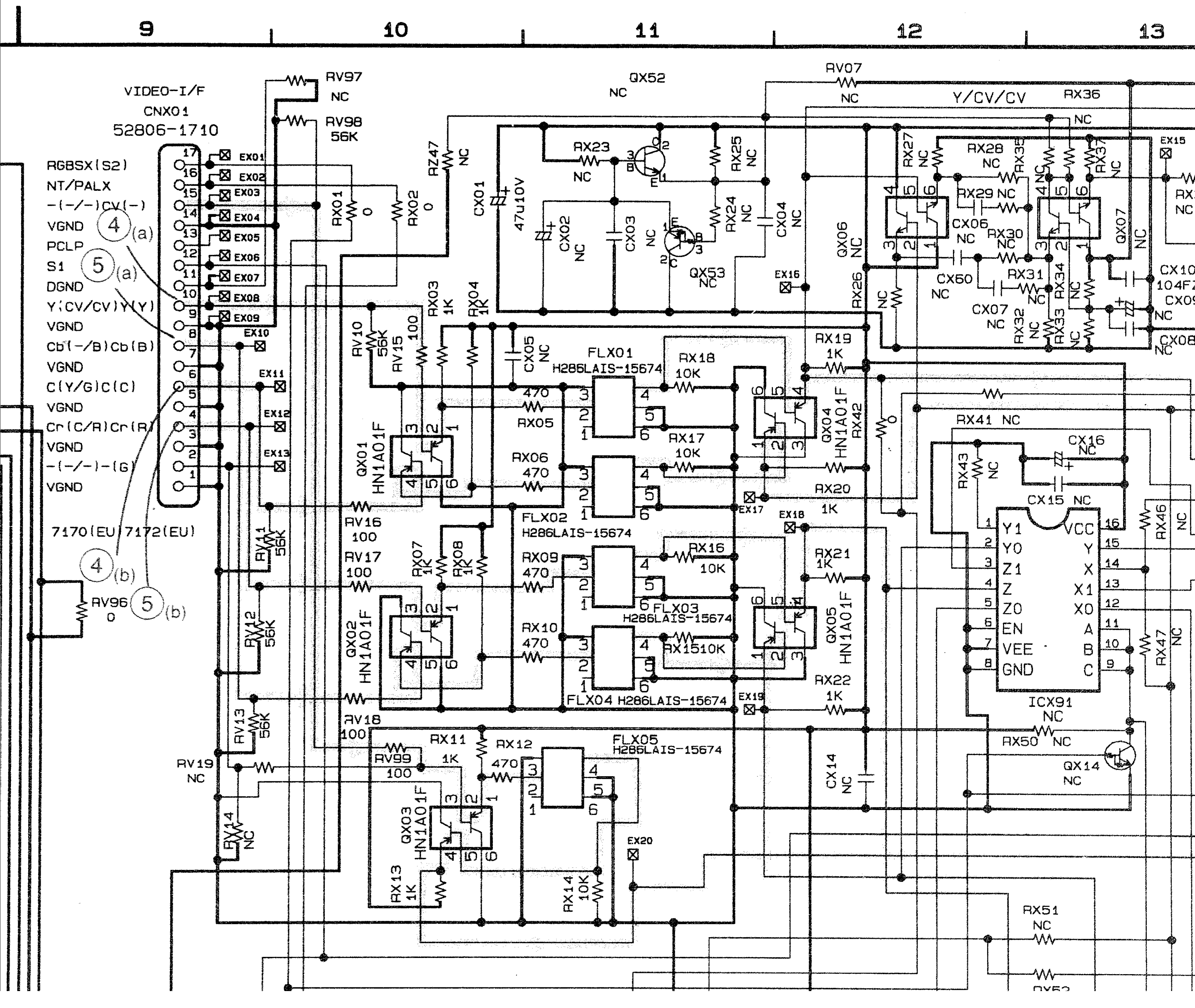
Pin No	Wave No
21	⑧(a)
20	⑧(b)
2, 3, 19	⑧(c)
17	⑥(a)
16	⑥(b)
15	⑥(c)

Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location	Part No.	L
EX02	A9	EX29	F15	EY12	D1	EY39	H7	FLX02	C11	ICY17	H2	LY06	B4	QX27	F10	QY14	
EX03	A9	EX30	F15	EY13	E1	EY40	H7	FLX03	C11	ICY18	J3	LY07	A6	QX28	F12	QY15	
EX04	B9	EX31	F16	EY14	E1	EY41	J7	FLX04	C11	ICY19	J3	LY08	G2	QX29	H9	QY16	
EX05	B9	EX32	H15	EY15	E1	EY42	J7	FLX05	D11	ICY20	H3	LY09	J2	QX31	H11	QY17	
EX06	B9	EX33	G16	EY16	E1	EY43	G5	FLX06	K12	ICY21	H5	LY10	K4	QX33	H12	QY18	
EX07	B9	EX34	H15	EY17	E1	EY44	H5	FLX07	L12	ICY22	K2	LY11	G4	QX35	H13	QY19	
EX08	B9	EX35	G15	EY18	E4	EY45	K5	FLX08	J12	ICY23	M3	LY12	B3	QX37	J11	QY20	
EX09	B9	EX36	G15	EY19	E4	EY46	L5	FLY01	B7	ICY24	M3	QX01	B10	QX39	J13	QY21	
EX10	B9	EX37	H15	EY20	D6	EY47	J4	FLY02	B7	ICY25	L3	QX02	C10	QX42	K11	QY22	
EX11	B9	EX38	J11	EY21	E5	EY48	M4	FLY03	B5	ICY26	L5	QX03	D10	QX44	K13	QY23	
EX12	B10	EX39	J11	EY22	A5	EY49	E1	ICX71	H14	ICY27	A5	QX04	B12	QX47	L11	QY24	
EX13	B10	EX40	J11	EY23	B8	EY50	E1	ICX72	J14	ICY28	C2	QX05	C12	QX49	L13	QY25	
EX14	B14	EX41	K11	EY24	B8	EY51	E1	ICX91	C13	ICY29	C6	QX06	B12	QX52	A11	QY26	
EX15	A13	EX42	J13	EY25	A6	EY52	E1	ICX92	F12	ICY30	E6	QX07	B13	QX53	B11	QY27	
EX16	B12	EX43	K13	EY26	A6	EY53	E1	ICX93	H10	ICY31	F2	QX08	B14	QY01	E4	QY28	
EX17	C11	EX44	L13	EY27	F8	EY54	A6	ICY01	D3	ICY32	F3	QX10	C14	QY02	C8	QY29	
EX18	C12	EY01	C1	EY28	F7	EY55	A6	ICY02	C3	ICY33	B3	QX12	C14	QY03	E7	QY30	
EX19	C11	EY02	D1	EY29	F7	EY56	J3	ICY03	D5	JPY02	B5	QX14	D13	QY04	E7	RV01	
EX20	D11	EY03	D1	EY30	F7	EY57	M3	ICY04	D7	JX01	C16	QX15	D14	QY05	C6	RV02	
EX21	C16	EY04	D1	EY31	F7	EY58	F1	ICY05	C7	JX02	E16	QX16	E14	QY06	F5	RV03	
EX22	D15	EY05	D1	EY32	E1	EY59	F4	ICY06	E7	JX03	F16	QX18	F14	QY07	F6	RV05	
EX23	D15	EY06	D1	EY33	F7	EY60	J4	ICY07	E2	JY01	G8	QX20	F14	QY08	H6	RV06	
EX24	E15	EY07	D1	EY34	G8	EY61	M4	ICY08	E3	JY02	B6	QX22	F13	QY09	M4	RV07	
EX25	E15	EY08	D1	EY35	G7	EY62	F3	ICY09	C4	LY01	E1	QX23	E13	QY10	K6	RV10	
EX26	E15	EY09	D1	EY36	G7	EY63	F3	ICY10	A6	LY02	E2	QX24	E10	QY11	L6	RV11	
EX27	F15	EY10	D1	EY37	H7	EY64	G4	ICY11	A2	LY03	C3	QX25	F10	QY12	J4	RV12	
EX28	F15	EY11	D1	EY38	H7	FLX01	B11	ICY15	A3	LY04	D4	QX26	F10	QY13	G6	RV13	



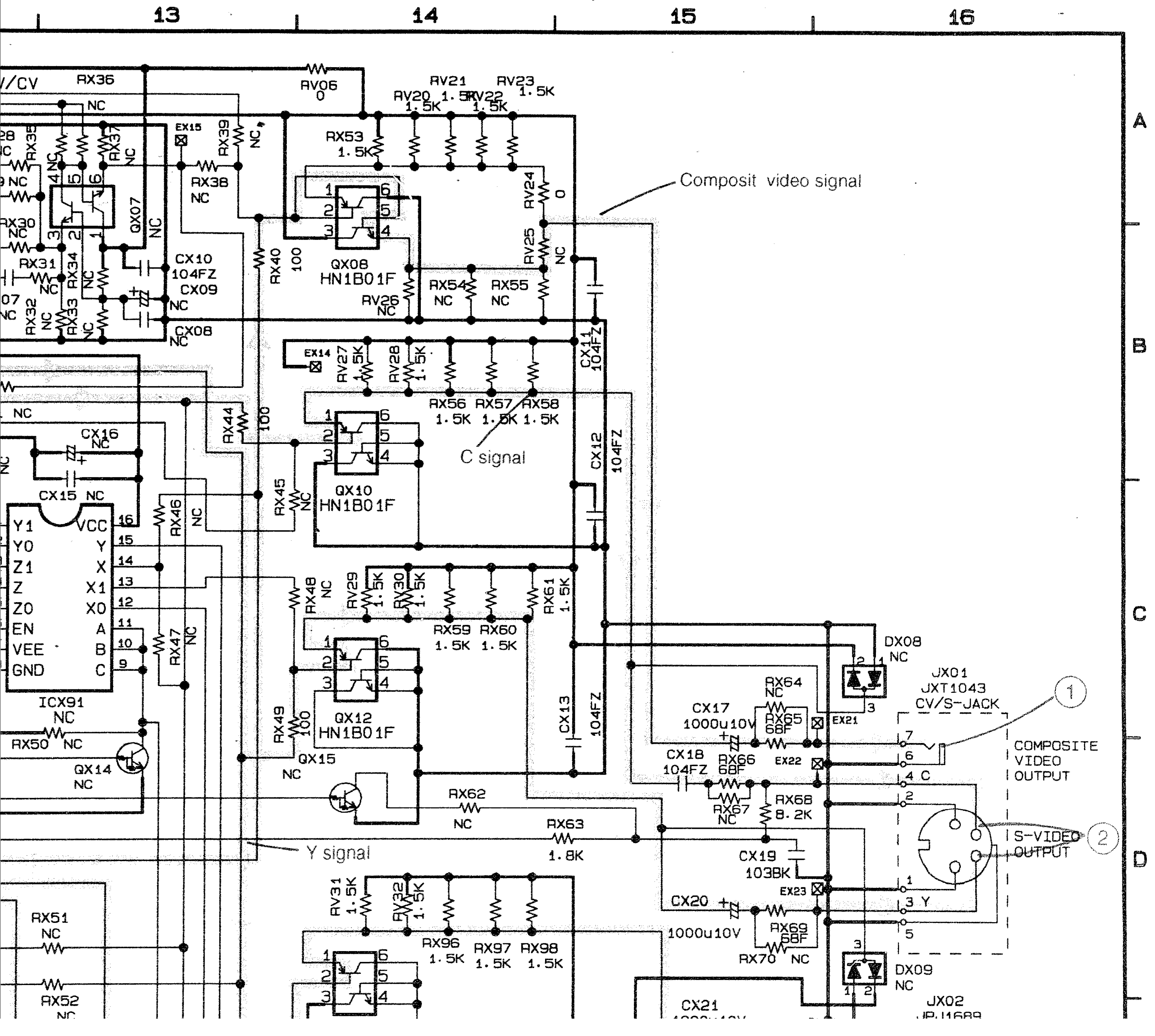
5
6
7
8
ICY27
TC7W74F
VDD
PRX
CLR
Q
CK
D
QX
VSS
RW44
NC
RW10
100K
RY33
47K
RY34
100K
ICY09
TC74HCU04AF
VCC
GND
EY22
RY35
68
RY36
270
CY32
105BK
RY37
68
RY38
91
JPY02
FLY03
NC
EY25
EY54
LY07
ZA102
CW08
104FZ
ICY10
TOTX178
D-IN
VCC
GND
TOS-LINK-OUTPUT
EY26
EY55
COAXAL-DIGITAL
OUTPUT
JY02
JPJ1059
CW14
NC
RW28
NC
RW27
NC
FLY01
SGM32C
FLY02
SGM32C
CW09
1000u25V-AWF
EY24
POWER-SUPPLY
CNY03
WIRE-05P-L300S
EY23
AV+10V
GND
NC
E+5V
NC
VI
528
RGBSX(S2)
NT/PALX
-(-/-)CV(-
VGND
PCLP
S1
DGND
Y(CV/CV)Y(
VGND
Cb(-/B)Cb(
VGND
C(Y/G)C(C)
VGND
Cr(C/R)Cr(
VGND
-(-/-)-(G)
VGND
7170(EU)71
RV96
0
ICY29
TC7S66F
VCC
GND
ICY05
NC
QY02
HN1C03F
CY17
220u10V-FW
RY06
4.7KD
CY16
221FL
220u10V-FW
CY10
RY08
1.8KD
RY10
1.8KD
CY11
220u10V-FW
RY14
2KD
CY14
102FL
CY15
102FL
RY18
2KD
EY20
RY12
2KD
RY16
2KD
CY22
221FL
QY05
DTC143
RW13
2KD
RY24
NC
RY39
2KD
RY40
2KD
RY20
2KD
RY48
1KD
RY22
2KD
CY44
100CH
CY25
100u10V-FW
RY27
100D
RY31
100D
RY29 2.2K
ICY03
NJM4580E
VSS
VCC
CY24
104FZ
DY01
1SS368
SY01
EG2-9
NC
ICY04
NJM4580E
CY27
104FZ
RY49
1KD
CY28
NC
CY23
CY43
220u10V-FW
Front out
MIXED out

oca-ion	Part No.	Loca-tion	Part No.	Loca-tion	Part No.	Loca-tion	Part No.	Loca-tion	Part No.	Loca-tion	Part No.	Loca-tion	Part No.	Loca-tion	Part No.	Loca-tion	Pa N
F10	QY14	E6	RV14	D9	RV41	J11	RW05	K6	RW33	H6	RX15	C11	RX42	B12	RX69	D15	RX
F12	QY15	F4	RV15	B10	RV42	K11	RW06	L6	RW34	J6	RX16	C11	RX43	C12	RX70	D15	RX
H9	QY16	J4	RV16	C10	RV43	L11	RW07	E5	RW35	L6	RX17	B11	RX44	B13	RX71	E10	RX
H11	QY17	M4	RV17	C10	RV44	K11	RW08	G3	RW36	M6	RX18	B11	RX45	C13	RX72	E10	RX
H12	QY18	F3	RV18	D10	RV45	L11	RW09	B4	RW37	G7	RX19	B12	RX46	C13	RX73	E10	RY
H13	QY19	G3	RV19	D9	RV46	G9	RW10	A5	RW38	F7	RX20	C12	RX47	C13	RX74	E10	RY
J11	QY20	G3	RV20	A14	RV47	G10	RW11	C3	RW39	C4	RX21	C12	RX48	C14	RX75	E10	RY
J13	QY21	G3	RV21	A14	RV48	G11	RW12	E6	RW40	C4	RX22	C12	RX49	D13	RX76	F10	RY
K11	QY22	F4	RV22	A14	RV49	G11	RW13	C7	RW41	C3	RX23	A11	RX50	D12	RX77	F9	RY
K13	QY23	F4	RV23	A14	RV50	G12	RW14	E7	RW42	C3	RX24	A11	RX51	D13	RX78	F10	RY
L11	QY24	J3	RV24	A14	RV51	G12	RW15	E3	RW44	A5	RX25	A11	RX52	E13	RX79	F10	RY
L13	QY25	K2	RV25	B14	RV52	G13	RW16	F3	RW45	F7	RX26	B12	RX53	A14	RX80	F10	RY
A11	QY26	L2	RV26	B14	RV53	G14	RW17	J2	RW46	F7	RX27	A12	RX54	B14	RX81	F10	RY
B11	QY27	M1	RV27	B14	RV54	J13	RW18	L1	RX01	A10	RX28	A12	RX55	B14	RX82	F12	RY
E4	QY28	G7	RV28	B14	RV55	H14	RW20	F2	RX02	A10	RX29	A12	RX56	B14	RX83	E12	RY
C8	QY29	C4	RV29	C14	RV57	J15	RW21	F7	RX03	B10	RX30	B12	RX57	B14	RX84	E12	RY
E7	QY30	C3	RV30	C14	RV58	J15	RW22	F7	RX04	B10	RX31	B12	RX58	B14	RX85	E13	RY
E7	RV01	K15	RV31	D14	RV59	K15	RW23	E3	RX05	B11	RX32	B12	RX59	C14	RX86	E13	RY
C6	RV02	K15	RV32	D14	RV60	K15	RW24	F3	RX06	C11	RX33	B13	RX60	C14	RX87	F13	RY
F5	RV03	K15	RV33	E14	RV96	C9	RW25	J3	RX07	C10	RX34	B13	RX61	C14	RX88	F13	RY
F6	RV05	F11	RV34	E14	RV97	A10	RW26	M3	RX08	C10	RX35	A12	RX62	D14	RX89	F13	RY
H6	RV06	A14	RV35	F14	RV98	A10	RW27	B6	RX09	C11	RX36	A13	RX63	D15	RX90	F13	RY
M4	RV07	A12	RV36	F14	RV99	D10	RW28	B6	RX10	C11	RX37	A13	RX64	C15	RX91	F13	RY
K6	RV10	B10	RV37	J11	RW01	K6	RW29	F5	RX11	D10	RX38	A13	RX65	C15	RX92	E13	RY
L6	RV11	C9	RV38	J11	RW02	K6	RW30	E4	RX12	D10	RX39	A13	RX66	D15	RX93	E13	RY
J4	RV12	C9	RV39	J11	RW03	L6	RW31	F4	RX13	D10	RX40	B13	RX67	D15	RX94	F13	RY
G6	RV13	D9	RV40	K11	RW04	L6	RW32	F5	RX14	D11	RX41	B12	RX68	D15	RX95	E13	RY

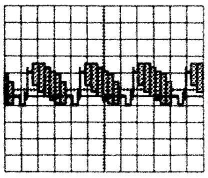


9
10
11
12
13
VIDEO-I/F
CNX01
52806-1710
RGBSX(S2)
NT/PALX
-(-/-)CV(-)
VGND
PCLP
S1
DGND
Y(CV/CV)Y(Y)
Cb(-/B)Cb(B)
C(Y/G)C(C)
Cr(C/R)Cr(R)
-(-/-)-(G)
④(a)
⑤(a)
④(b)
⑤(b)
7170(EU) 7172(EU)
EX01
EX02
EX03
EX04
EX05
EX06
EX07
EX08
EX09
EX10
EX11
EX12
EX13
EX15
EX16
EX17
EX18
EX19
EX20
RV97 NC
RV98 56K
RV96 0
RX01 0
RX02 0
RZ47 NC
CX01 47u10V
CX02 NC
CX03
CX04 NC
CX05 NC
QX52 NC
QX53 NC
RX23 NC
RX24 NC
RX25 NC
RX03 1K
RX04 1K
RV10 56K
RV15 100
RV11 56K
RV12 56K
RV13 56K
RV14 NC
RV16 100
RV17 100
RV18 100
RV19 NC
RV99 100
FLX01 H286LAIS-15674
FLX02 H286LAIS-15674
FLX03 H286LAIS-15674
FLX04 H286LAIS-15674
FLX05 H286LAIS-15674
RX05 470
RX06 470
RX09 470
RX10 470
RX12 470
RX11 1K
RX13 1K
RX14 10K
RX07 1K
RX08 1K
RX15 10K
RX16 10K
RX17 10K
RX18 10K
RX19 1K
RX20 1K
RX21 1K
RX22 1K
QX01 HN1A01F
QX02 HN1A01F
QX03 HN1A01F
QX04 HN1A01F
QX05 HN1A01F
QX06 NC
QX07 NC
RX42 0
RX26
RV07 NC
Y/CV/CV
RX36 NC
RX27 NC
RX28 NC
RX29 NC
RX30 NC
RX31 NC
RX32 NC
RX33 NC
RX34 NC
RX35
RX37 NC
CX06 NC
CX07 NC
CX60 NC
CX08 NC
CX09 NC
CX10 104FZ
RX41 NC
RX43 NC
RX46 NC
RX47 NC
CX15 NC
CX16 NC
CX14 NC
ICX91 NC
Y1
Y0
Z1
Z
Z0
EN
VEE
GND
VCC
Y
X
X1
X0
A
B
C
RX50 NC
QX14 NC
RX51 NC
RX52

Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location
RX69	D15	RX96	D14	RY24	C7	RY54	F6	RY82	J8	RZ11	F15	RZ39	G10	RZ67	J15
RX70	D15	RX97	D14	RY25	E7	RY55	G3	RY83	J7	RZ12	G14	RZ40	G10	RZ68	J16
RX71	E10	RX98	D14	RY26	E7	RY56	G4	RY84	K3	RZ13	G14	RZ41	G10	RZ69	J16
RX72	E10	RX99	E14	RY27	D8	RY57	J4	RY85	K3	RZ14	F15	RZ42	G9	RZ70	J16
RX73	E10	RY01	A2	RY28	E8	RY58	G4	RY86	K4	RZ15	G15	RZ43	G9	RZ71	K16
RX74	E10	RY02	D1	RY29	D8	RY59	G5	RY87	M4	RZ16	G15	RZ44	J9	RZ74	J14
RX75	E10	RY03	D1	RY30	E8	RY60	H4	RY88	K4	RZ17	G15	RZ45	J9	RZ75	K13
RX76	F10	RY04	D1	RY31	D8	RY61	H4	RY89	K4	RZ18	G15	RZ46	J9	RZ76	K12
RX77	F9	RY05	D3	RY32	E8	RY62	G5	RY90	L4	RZ19	G15	RZ47	A10	RZ77	K12
RX78	F10	RY06	C4	RY33	B5	RY63	H5	RY91	L4	RZ20	G15	RZ48	J11	RZ78	K13
RX79	F10	RY07	E4	RY34	B5	RY64	G5	RY92	K5	RZ21	G15	RZ49	J11	RZ79	K12
RX80	F10	RY08	C5	RY35	A5	RY65	H5	RY93	L5	RZ22	G15	RZ50	J11	RZ80	K12
RX81	F10	RY09	E5	RY36	A5	RY66	G5	RY94	K5	RZ23	H15	RZ51	J11	RZ81	K13
RX82	F12	RY10	D5	RY37	A6	RY67	H5	RY95	L5	RZ24	H15	RZ52	J12	RZ82	K14
RX83	E12	RY11	E5	RY38	B6	RY68	G5	RY96	K5	RZ25	H15	RZ53	J14	RZ83	K13
RX84	E12	RY12	D5	RY39	D6	RY69	H5	RY97	L5	RZ26	H15	RZ54	J15	RZ84	K13
RX85	E13	RY13	E5	RY40	D7	RY70	G6	RY98	K5	RZ27	H15	RZ55	J15	RZ85	K11
RX86	E13	RY14	C5	RY41	F7	RY71	H6	RY99	L4	RZ28	G14	RZ56	J15	RZ86	K11
RX87	F13	RY15	E5	RY45	B2	RY72	G6	RZ01	E14	RZ29	G14	RZ57	J13	RZ87	K11
RX88	F13	RY16	D5	RY46	E7	RY73	H6	RZ02	E14	RZ30	G14	RZ58	J15	RZ91	L13
RX89	F13	RY17	E5	RY47	E6	RY74	G6	RZ03	F14	RZ31	G13	RZ59	J12	RZ92	L13
RX90	F13	RY18	C5	RY48	D7	RY75	J6	RZ04	F14	RZ32	G13	RZ60	J12	RZ93	K11
RX91	F13	RY19	E5	RY49	D7	RY76	G8	RZ05	F15	RZ33	H12	RZ61	J13	RZ94	K12
RX92	E13	RY20	D6	RY50	F5	RY77	G7	RZ06	E15	RZ34	G12	RZ62	J14	RZ96	L12
RX93	E13	RY21	E6	RY51	F5	RY78	H8	RZ07	E15	RZ35	G12	RZ63	J13	RZ97	L12
RX94	F13	RY22	C7	RY52	F6	RY79	H7	RZ08	E15	RZ36	G11	RZ64	J13	RZ98	L13
RX95	E13	RY23	E7	RY53	F6	RY80	H8	RZ09	E15	RZ37	G11	RZ65	J13	SY01	D7
						RY81	H7	RZ10	E15	RZ38	G11	RZ66	H15	XY02	B2


13
14
15
16
A
B
C
D
/CV
RX36
NC
RV06
0
RV21
RV23
RV20
1.5K
RV22
1.5K
EX15
RX39
RX53
1.5K
RX38
NC
RV24
0
Composit video signal
QX07
CX10
104FZ
CX09
RX40
100
QX08
HN1B01F
RV25
NC
RX54
NC
RX55
NC
RV26
NC
CX08
NC
CX11
104FZ
EX14
RV27
1.5K
RV28
1.5K
RX56
1.5K
RX57
1.5K
RX58
1.5K
RX44
100
CX16
NC
C signal
CX12
104FZ
CX15
NC
RX45
NC
QX10
HN1B01F
RX46
NC
Y1
Y0
Z1
Z
Z0
EN
VEE
GND
VCC
Y
X
X1
X0
A
B
C
16
15
14
13
12
11
10
9
RX48
NC
RV29
1.5K
RV30
1.5K
RX61
1.5K
RX59
1.5K
RX60
1.5K
RX47
NC
ICX91
NC
DX08
NC
JX01
JXT1043
CV/S-JACK
①
RX64
NC
CX17
1000u10V
RX65
68F
EX21
RX49
100
QX12
HN1B01F
CX13
104FZ
RX50
NC
QX14
NC
QX15
NC
COMPOSITE
VIDEO
OUTPUT
CX18
104FZ
RX66
68F
EX22
RX62
NC
RX67
NC
RX68
8.2K
RX63
1.8K
Y signal
S-VIDEO
OUTPUT
②
CX19
103BK
EX23
RX31
1.5K
RX32
1.5K
CX20
1000u10V
RX69
68F
RX70
NC
RX51
NC
RX96
1.5K
RX97
1.5K
RX98
1.5K
DX09
NC
RX52
NC
CX21
JX02
JPJ1689
7
6
4 C
2
1
3 Y
5

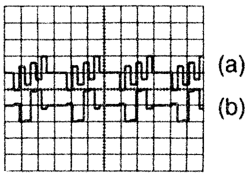
① JX01 Composite video output C-16



CVBS output
75Ω terminated
100% color bar

V: 500 mV/div
H: 20 μs/div

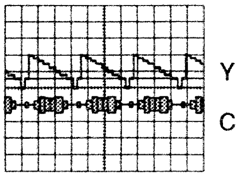
⑤ CNX01
(a) Pin⑧ (Cb) B-9
(b) Pin④ (Cr) C-9



100% color bar (Play)

V: 1 V/div
H: 20 μs/div

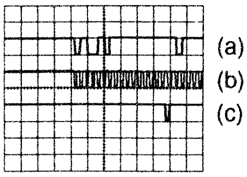
② JX01 S-video output D-16



S-Y/C
75Ω terminated
100% color bar

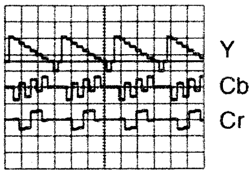
V: 500 mV/div
H: 20 μs/div

⑥ CNY01
(a) Pin⑰ (S DATA) D-1
(b) Pin⑯ (S CLOCK) D-1
(c) Pin⑮ (DACSX) D-1



V: 5 V/div
H: 20 μs/div

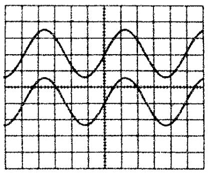
③ JX02 Y/Cb/Cr output E-16



Component output
75Ω terminated
100% color bar (Play)

V: 500 mV/div
H: 20 μs/div

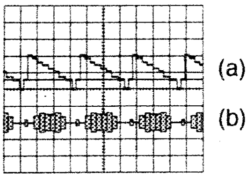
⑦ JY01 L ch output / R ch output H-8



L ch output

R ch output
V: 2 V/div
H: 200 μs/div

④ CNX01
(a) Pin⑩ (Y) B-9
(b) Pin⑥ (C) C-9



100% color bar (Play)

V: 1 V/div
H: 20 μs/div

⑧ CNY01
(a) Pin㉑ (LRCK) D-1
(b) Pin⑳ (BCK) D-1
(c) Pin⑲ (ADATA) D-1
② (ADATA2) } 5.1ch E-1
③ (ADATA1) } 5.1ch E-1

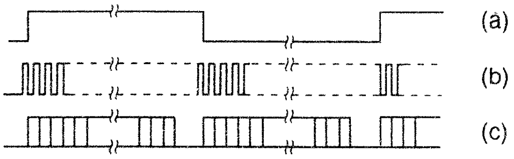


Fig. 3-5-7

IC

ICY01
DA CONVERTER

1	0
2	2.5
3	4.9
4	3.2
5	3.5
6	0

ICY07
AND GATE

1	0
2	0
3	0
4	0
5	4.9

ICY17
3-STATE
BUFFER

1	4.7
2	0
3	1.3
4	0
5	1.3
6	1.3

ICY21
OP AMP

1	4.9
2	4.9
3	4.9
4	0
5	4.9
6	4.9

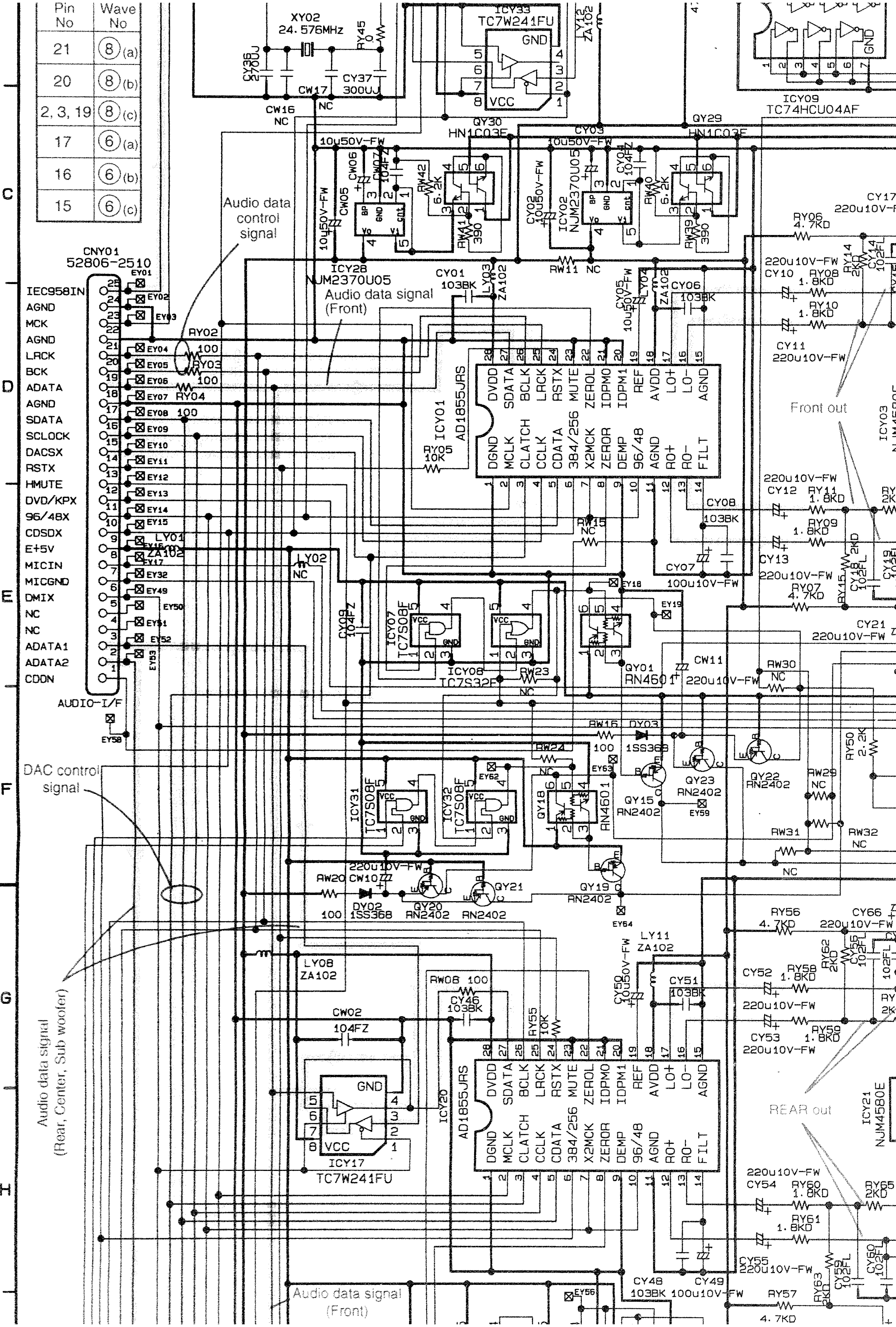
ICY25
DA CONVERTER

1	0
2	2.5
3	4.9
4	3.2
5	3.5
6	0

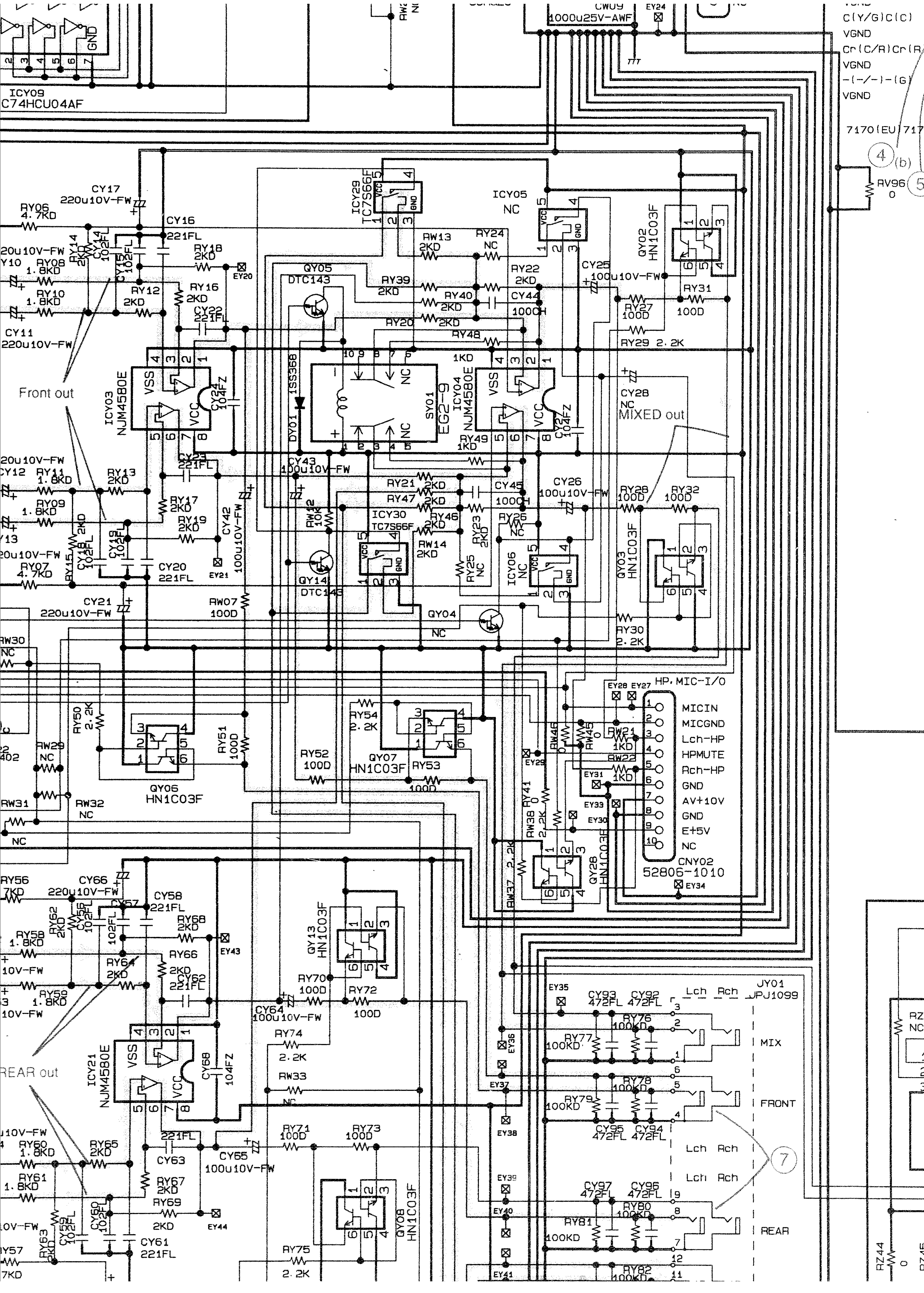
ICY28
REGURATOR

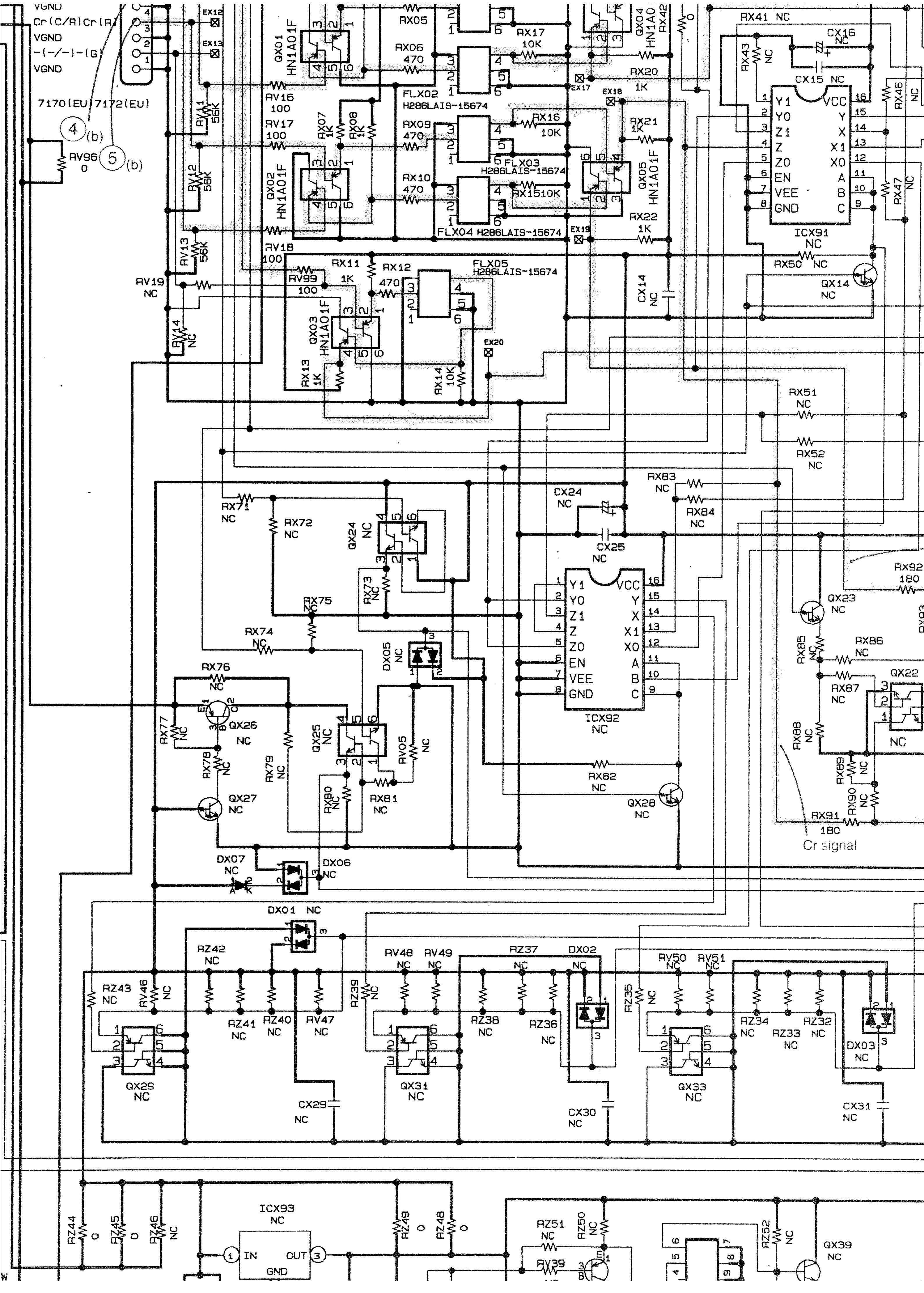
1	6.5
2	0
3	1.2
4	4.9
5	6.5

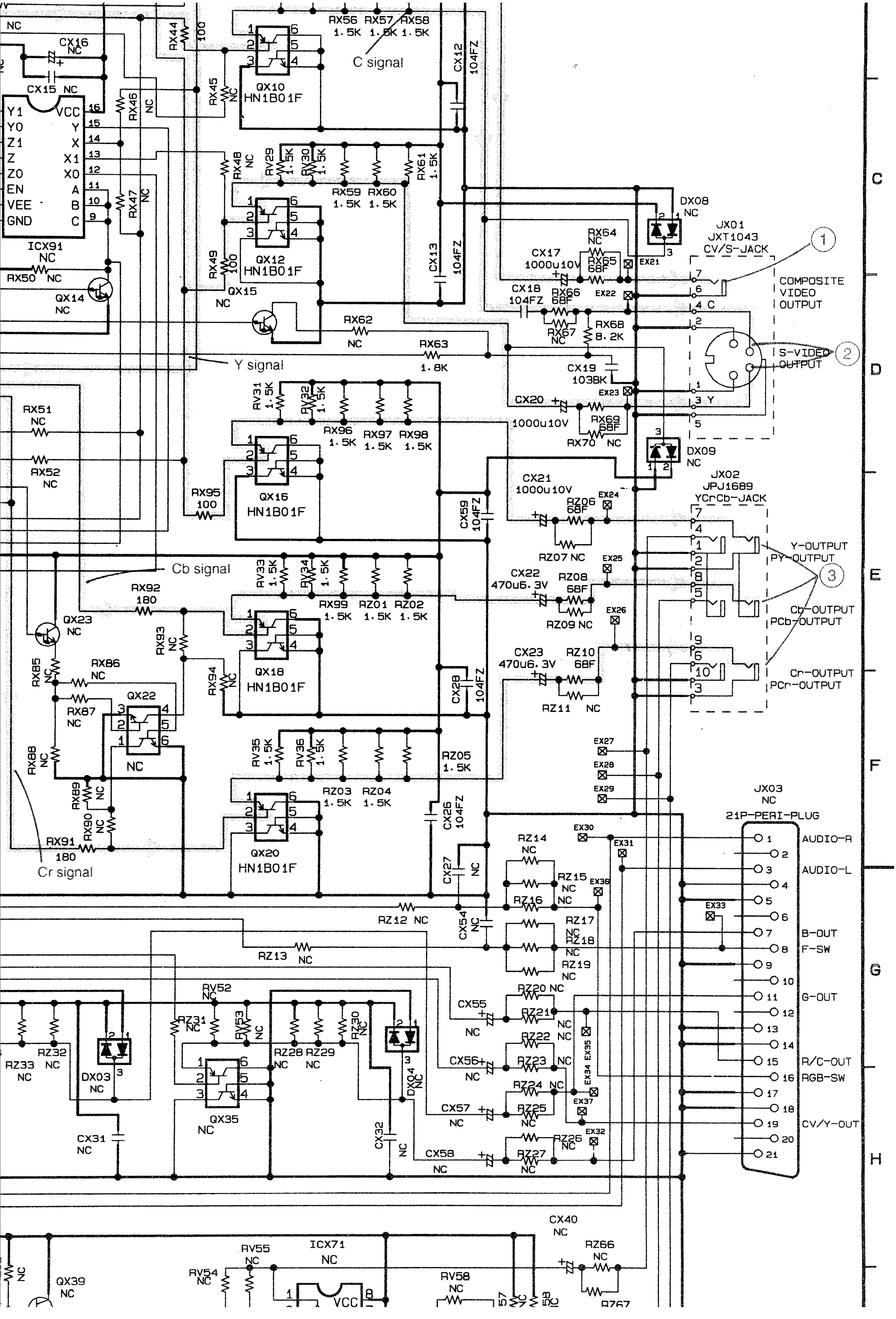
Pin No	Wave No
21	⑧(a)
20	⑧(b)
2, 3, 19	⑧(c)
17	⑥(a)
16	⑥(b)
15	⑥(c)



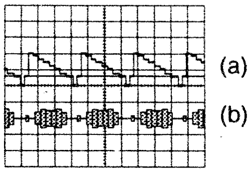
C
D
E
F
G
H
XY02
24.576MHz
CY36 270UJ
CY37 300UJ
CW17
CW16 NC
NC
RY45 0
ICY33
TC7W241FU
GND
VCC
LY12 ZA102
ICY09
TC74HCU04AF
GND
QY30
HN1C03F
QY29
HN1C03F
CY03
10u50V-FW
CW06
CW07 104FZ
CW05 10u50V-FW
RW42 6.2K
RW41 390
ICY28
NJM2370U05
CY02 10u50V-FW
ICY02 NJM2370U05
CY04 104FZ
RW40 6.2K
RW39 390
RW11 NC
Audio data control signal
CNY01
52806-2510
IEC958IN
AGND
MCK
AGND
LRCK
BCK
ADATA
AGND
SDATA
SCLOCK
DACSX
RSTX
HMUTE
DVD/KPX
96/48X
CDSDX
E+5V
MICIN
MICGND
DMIX
NC
NC
ADATA1
ADATA2
CDON
AUDIO-I/F
EY01
EY02
EY03
EY04
EY05
EY06
EY07
EY08
EY09
EY10
EY11
EY12
EY13
EY14
EY15
EY16
EY17
EY32
EY49
EY50
EY51
EY52
EY53
EY58
RY02 100
RY03 100
RY04 100
Audio data signal (Front)
CY01 103BK
LY03 ZA102
CY05 10u50V-FW
LY04 ZA102
CY06 103BK
ICY01
AD1855JRS
DVDD
SDATA
BCLK
LRCK
RSTX
MUTE
ZEROL
IDPM0
IDPM1
REF
AVDD
LO+
LO-
AGND
DGND
MCLK
CLATCH
CCLK
CDATA
384/256
X2MCK
ZEROR
DEMP
96/48
AGND
RO+
RO-
FILT
RY05 10K
RY15 NC
CY08 103BK
CY07 100u10V-FW
LY01 ZA102
LY02 NC
CY09 104FZ
ICY07 TC7S08F
ICY08 TC7S32F
RW23 NC
EY18
EY19
QY01 RN4601
CW11 220u10V-FW
RW30 NC
Front out
CY17 220u10V-FW
RY06 4.7KD
CY10 220u10V-FW
RY08 1.8KD
RY10 1.8KD
RY14 2KD
CY14 102FL
CY11 220u10V-FW
ICY03
CY12 220u10V-FW
RY11 1.8KD
RY09 1.8KD
CY13 220u10V-FW
CY18 102FL
CY19 102FL
RY15
RY07 4.7KD
CY21 220u10V-FW
RW16 100
DY03 1SS368
RW24 NC
EY63
QY23 RN2402
QY22 RN2402
QY15 RN2402
EY59
RY50 2.2K
RW29 NC
RW31
RW32 NC
NC
DAC control signal
ICY31 TC7S08F
ICY32 TC7S08F
EY62
QY18 RN4601
CW10 220u10V-FW
RW20 100
DY02 1SS368
QY20 RN2402
QY21 RN2402
QY19 RN2402
EY64
LY11 ZA102
RY56 4.7KD
CY66 220u10V-FW
RY62 2KD
CY56 102FL
LY08 ZA102
RW08 100
CY46 103BK
RY55 10K
CY50 10u50V-FW
CY51 103BK
CY52 220u10V-FW
RY58 1.8KD
CY53 220u10V-FW
RY59 1.8KD
CW02 104FZ
ICY17 TC7W241FU
ICY20 AD1855JRS
REAR out
ICY21 NJM4580E
Audio data signal (Rear, Center, Sub woofer)
CY54 220u10V-FW
RY60 1.8KD
RY65 2KD
RY61 1.8KD
CY55 220u10V-FW
CY59 102FL
CY60 102FL
RY63 2KD
CY48 103BK
CY49 100u10V-FW
EY56
RY57 4.7KD
Audio data signal (Front)


ICY09
C74HCU04AF
GND
CWU9
1000u25V-AWF
EY24
C(Y/G)C(C)
VGND
Cr(C/R)Cr(R)
VGND
-(-/-)-(G)
VGND
7170(EU) 717
④(b)
⑤
RV96
0
ICY29
TC7S66F
VCC
GND
ICY05
NC
QY02
HN1C03F
CY17
220u10V-FW
RY06
4.7KD
CY16
221FL
RY14
2KD
CY14
102FL
CY15
102FL
RY18
2KD
EY20
RY08
1.8KD
RY10
1.8KD
RY12
2KD
RY16
2KD
CY22
221FL
CY11
220u10V-FW
QY05
DTC143
RW13
2KD
RY24
NC
RY22
2KD
CY25
100u10V-FW
RY39
2KD
RY40
2KD
CY44
100CH
RY27
100D
RY31
100D
RY20
2KD
RY48
1KD
RY29 2.2K
ICY03
NJM4580E
VSS
VCC
CY24
104FZ
1SS368
DY01
SY01
EG2-9
NC
ICY04
NJM4580E
CY27
104FZ
CY28
NC
MIXED out
Front out
RY49
1KD
CY23
221FL
CY43
100u10V-FW
RY11
1.8KD
RY13
2KD
RY21
2KD
RY47
2KD
CY45
100CH
CY26
100u10V-FW
RY28
100D
RY32
100D
RY09
1.8KD
RY17
2KD
RY19
2KD
CY42
100u10V-FW
RW12
10K
ICY30
TC7S66F
RY46
2KD
RY23
2KD
RY26
NC
QY03
HN1C03F
RY15
2KD
CY18
102FL
CY19
102FL
CY20
221FL
EY21
RW14
2KD
RY25
NC
ICY06
NC
RY07
4.7KD
QY14
DTC143
CY21
220u10V-FW
RW07
100D
QY04
NC
RY30
2.2K
RW30
NC
RY50
2.2K
RY54
2.2K
HP,MIC-I/O
EY28 EY27
MICIN
MICGND
Lch-HP
HPMUTE
Rch-HP
GND
AV+10V
GND
E+5V
NC
RW29
NC
RY51
100D
QY06
HN1C03F
RY52
100D
QY07
HN1C03F
RY53
100D
RW46
RW45
RW21
1KD
RW22
1KD
EY29
EY31
EY33
EY30
RY41
0
RW38
2.2K
RW31
RW32
NC
NC
RW37
2.2K
QY28
HN1C03F
CNY02
52806-1010
EY34
RY56
4.7KD
CY66
220u10V-FW
CY58
221FL
CY57
102FL
CY55
102FL
RY62
2KD
RY68
2KD
EY43
RY58
1.8KD
QY13
HN1C03F
RY64
2KD
RY66
2KD
CY62
221FL
RY70
100D
RY72
100D
RY59
1.8KD
CY64
100u10V-FW
EY35
CY93
472FL
CY92
472FL
Lch Rch
JY01
JPJ1099
RY76
100KD
RY77
100KD
MIX
EY36
REAR out
ICY21
NJM4580E
CY68
104FZ
RY74
2.2K
RW33
NC
EY37
RY78
100KD
RY79
100KD
FRONT
CY95
472FL
CY94
472FL
RY60
1.8KD
RY65
2KD
CY63
221FL
CY65
100u10V-FW
RY71
100D
RY73
100D
EY38
⑦
RY61
1.8KD
RY67
2KD
RY69
2KD
EY44
EY39
CY97
472FL
CY96
472FL
QY08
HN1C03F
EY40
RY80
100KD
RY81
100KD
REAR
CY59
102FL
CY60
102FL
CY61
221FL
RY63
2KD
RY57
4.7KD
RY75
2.2K
EY41
RY82
100KD
RZ44
0
RZ
NC


VGND
Cr(C/R)Cr(R)
VGND
-(-/-)-(G)
VGND
7170(EU) 7172(EU)
④(b)
⑤(b)
RV96 0
EX12
EX13
QX01 HN1A01F
RX05
RX06 470
FLX02 H286LAIS-15674
RV16 100
RV17 100
RV11 56K
RV12 56K
RX07 1K
RX08 1K
RX09 470
QX02 HN1A01F
RX10 470
FLX03 H286LAIS-15674
FLX04 H286LAIS-15674
RX15 10K
RX16 10K
RX17 10K
QX04 HN1A0
RX42
RX20 1K
EX17
EX18
RX21 1K
QX05 HN1A01F
EX19
RX22 1K
RV13 56K
RV18 100
RV19 NC
RV14 NC
RV99 100
RX11 1K
RX12 470
FLX05 H286LAIS-15674
QX03 HN1A01F
RX13 1K
RX14 10K
EX20
CX14 NC
RX41 NC
RX43 NC
CX16 NC
CX15 NC
RX46 NC
ICX91 NC
RX47 NC
RX50 NC
QX14 NC
RX51 NC
RX52 NC
Y1 Y0 Z1 Z Z0 EN VEE GND
VCC Y X X1 X0 A B C
RX83 NC
RX84 NC
CX24 NC
CX25 NC
RX71 NC
RX72 NC
QX24 NC
RX73 NC
RX75 NC
RX74 NC
DX05 NC
ICX92 NC
RX92 180
QX23 NC
RX85 NC
RX86 NC
RX87 NC
QX22
NC
RX88 NC
RX89 NC
RX90 NC
RX91 180
Cr signal
RX76 NC
QX26 NC
RX77 NC
RX78 NC
RX79 NC
QX25 NC
RV05 NC
RX80 NC
RX81 NC
RX82 NC
QX27 NC
QX28 NC
DX07 NC
DX06 NC
DX01 NC
RZ42 NC
RZ43 NC
RV46 NC
RZ41 NC
RZ40 NC
RV47 NC
RZ39 NC
RV48 NC
RV49 NC
RZ37 NC
DX02 NC
RZ38 NC
RZ36 NC
RZ35 NC
RV50 NC
RV51 NC
RZ34 NC
RZ33 NC
RZ32 NC
DX03 NC
QX29 NC
CX29 NC
QX31 NC
CX30 NC
QX33 NC
CX31 NC
RZ44 0
RZ45 0
RZ46 NC
ICX93 NC
IN OUT GND
RZ49 0
RZ48 0
RZ51 NC
RZ50 NC
RV39
RZ52 NC
QX39 NC


NC
CX16
NC
CX15 NC
Y1
Y0
Z1
Z
Z0
EN
VEE
GND
VCC
Y
X
X1
X0
A
B
C
16
15
14
13
12
11
10
9
ICX91
NC
RX50 NC
QX14
NC
RX44 100
RX46
NC
RX45 NC
RX47 NC
RX48 NC
RX49 100
QX15
NC
QX10
HN1B01F
RX56 RX57 RX58
1.5K 1.5K 1.5K
C signal
CX12 104FZ
RV29 1.5K
RV30 1.5K
RX59 RX60
1.5K 1.5K
RX61 1.5K
QX12
HN1B01F
CX13 104FZ
RX62
NC
RX63
1.8K
Y signal
DX08
NC
JX01
JXT1043
CV/S-JACK
①
COMPOSITE
VIDEO
OUTPUT
RX64
NC
CX17
1000u10V
RX65
68F
EX21
CX18
104FZ
RX66
68F
EX22
RX67
NC
RX68
8.2K
CX19
103BK
EX23
CX20
1000u10V
RX69
68F
RX70 NC
S-VIDEO
OUTPUT
②
7
6
4 C
2
1
3 Y
5
DX09
NC
RX51
NC
RX52
NC
RX95
100
RV31 1.5K
RV32 1.5K
RX96
1.5K
RX97
1.5K
RX98
1.5K
QX16
HN1B01F
CX59
104FZ
CX21
1000u10V
EX24
RZ06
68F
RZ07 NC
JX02
JPJ1689
YCrCb-JACK
Y-OUTPUT
PY-OUTPUT
③
Cb signal
RV33 1.5K
RV34 1.5K
RX99
1.5K
RZ01
1.5K
RZ02
1.5K
CX22
470u6.3V
EX25
RZ08
68F
RZ09 NC
EX26
Cb-OUTPUT
PCb-OUTPUT
RX92
180
QX23
NC
RX93
NC
QX18
HN1B01F
RX94
NC
CX28
104FZ
CX23
470u6.3V
RZ10
68F
RZ11 NC
Cr-OUTPUT
PCr-OUTPUT
RX85
NC
RX86
NC
RX87
NC
QX22
NC
RX88
NC
RX89
NC
RX90
NC
RX91
180
Cr signal
RV35 1.5K
RV36 1.5K
RZ03
1.5K
RZ04
1.5K
RZ05
1.5K
QX20
HN1B01F
CX26
104FZ
CX27
NC
EX27
EX28
EX29
JX03
NC
21P-PERI-PLUG
EX30
EX31
RZ14
NC
RZ15
NC
EX36
RZ16
NC
RZ12 NC
CX54
NC
RZ17
NC
RZ18
NC
RZ19
NC
EX33
RZ13 NC
AUDIO-R
AUDIO-L
B-OUT
F-SW
G-OUT
R/C-OUT
RGB-SW
CV/Y-OUT
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
RV52
NC
RZ31
NC
RV53
NC
RZ30
NC
RZ33
NC
RZ32
NC
DX03
NC
QX35
NC
RZ28
NC
RZ29
NC
DX04
NC
CX31
NC
CX32
NC
CX55
NC
RZ20 NC
RZ21
NC
NC
EX35
EX34
RZ22
CX56
NC
RZ23
NC
RZ24
NC
EX37
CX57
NC
RZ25
NC
CX58
NC
RZ26
NC
EX32
RZ27
NC
CX40
NC
RV55
NC
ICX71
NC
RV54
NC
RV58
NC
RZ66
NC
RZ67
QX39
NC
VCC
C
D
E
F
G
H

(a) Pin⑩ (Y) B-9
(b) Pin⑥ (C) C-9



100% color bar (Play)

V: 1 V/div
H: 20 µs/div

(a) Pin㉑ (LRCK) D-1
(b) Pin⑳ (BCK) D-1
(c) Pin⑲ (ADATA) D-1
② (ADATA2) E-1
③ (ADATA1) E-1
5.1ch

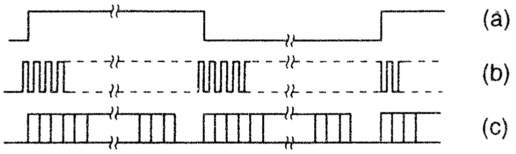


Fig. 3-5-7

IC

ICY01
DA CONVERTER

1	0
2	2.5
3	4.9
4	3.2
5	3.5
6	0
7	0
8	0
9	0
10	0
11	0
12	2.3
13	2.4
14	2.4
15	0
16	2.4
17	2.3
18	4.9
19	3.3
20	0
21	0
22	0
23	0
24	4.9
25	2.4
26	2.4
27	1.3
28	4.9

ICY02
REGURATOR

1	6.5
2	0
3	1.2
4	4.9
5	6.5

ICY03
OP AMP

1	4.9
2	4.9
3	4.9
4	4.9
5	4.9
6	4.9
7	4.9
8	9.2

ICY04
OP AMP

1	4.9
2	4.9
3	4.9
4	0
5	4.9
6	4.9
7	4.9
8	9.2

ICY07
AND GATE

1	0
2	0
3	0
4	0
5	4.9

ICY08
OR GATE

1	0
2	0
3	0
4	0
5	4.9

ICY09
INVERTER

1	2.5
2	2.5
3	2.5
4	2.5
5	2.5
6	2.5
7	0
8	2.5
9	2.5
10	2.5
11	2.0
12	2.6
13	2.0
14	4.9

ICY10

D-IN	2.5
VCC	4.9
GND	0

ICY11
OSCILLATOR

1	4.9
2	0
3	0
4	0
5	0
6	4.9
7	2.5
8	4.9

ICY15
3-STATE
BUFFER

1	0
2	0
3	0
4	0
5	0
6	2.5
7	4.9
8	4.9

ICY17
3-STATE
BUFFER

1	4.7
2	0
3	1.3
4	0
5	1.3
6	1.3
7	4.7
8	4.9

ICY18
AND GATE

1	0
2	0
3	0
4	0
5	4.9

ICY19
OR GATE

1	0
2	0
3	0
4	0
5	4.9

ICY20
DA CONVERTER

1	0
2	2.5
3	4.9
4	3.2
5	3.5
6	0
7	0
8	0
9	0
10	0
11	0
12	2.3
13	2.4
14	2.4
15	0
16	2.4
17	2.3
18	4.9
19	3.3
20	0
21	0
22	0
23	0
24	4.9
25	2.4
26	2.4
27	1.3
28	4.9

ICY21
OP AMP

1	4.9
2	4.9
3	4.9
4	0
5	4.9
6	4.9
7	4.9
8	9.2

ICY22
3-STATE
BUFFER

1	4.7
2	0
3	1.3
4	0
5	1.3
6	1.3
7	4.7
8	4.9

ICY23
AND GATE

1	0
2	0
3	0
4	0
5	4.9

ICY24
OR GATE

1	0
2	0
3	0
4	0
5	4.9

ICY25
DA CONVERTER

1	0
2	2.5
3	4.9
4	3.2
5	3.5
6	0
7	0
8	0
9	0
10	0
11	0
12	2.3
13	2.4
14	2.4
15	0
16	2.4
17	2.3
18	4.9
19	3.3
20	0
21	0
22	0
23	0
24	4.9
25	2.4
26	2.4
27	1.3
28	4.9

ICY26
OP AMP

1	4.9
2	4.9
3	4.9
4	0
5	4.9
6	4.9
7	4.9
8	9.2

ICY27
D-FLIP-FLOP

1	2.6
2	2.5
3	2.5
4	0
5	2.5
6	4.9
7	4.9
8	4.9

ICY28
REGURATOR

1	6.5
2	0
3	1.2
4	4.9
5	6.5

ICY29
SWITCH

1	4.9
2	4.9
3	0
4	0
5	9.2

ICY30
SWITCH

1	4.9
2	4.9
3	0
4	0
5	4.9

ICY31
AND GATE

1	0
2	0
3	0
4	0
5	4.9

ICY32
OR GATE

1	0
2	0
3	0
4	0
5	4.9

ICY33
3-STATE
BUFFER

1	0
2	0
3	0
4	0
5	0
6	2.5
7	4.9
8	4.9

Transistor

QY01
SWITCH

1	4.9
2	4.9
3	4.9
4	0

QY09
SWITCH

1	4.9
2	4.9
3	4.9
4	0

QY29
REGURATOR

1	9.2
2	7.4
3	6.5
4	8.2

QX06
BUFFER

1	9.2
2	2.7
3	2.1
4	9.2

QX18
DRIVER

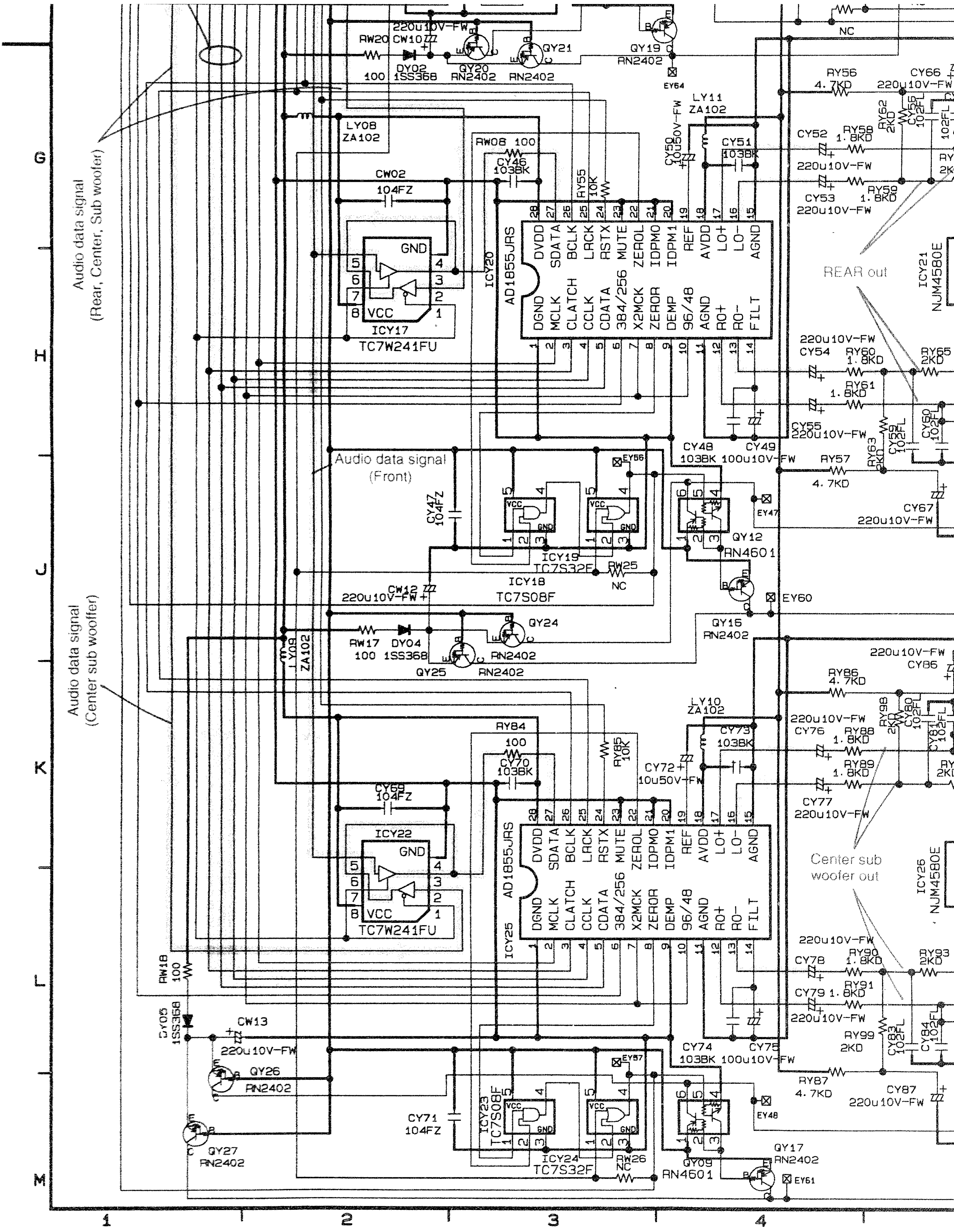
1	2.6
2	2.6
3	0
4	0

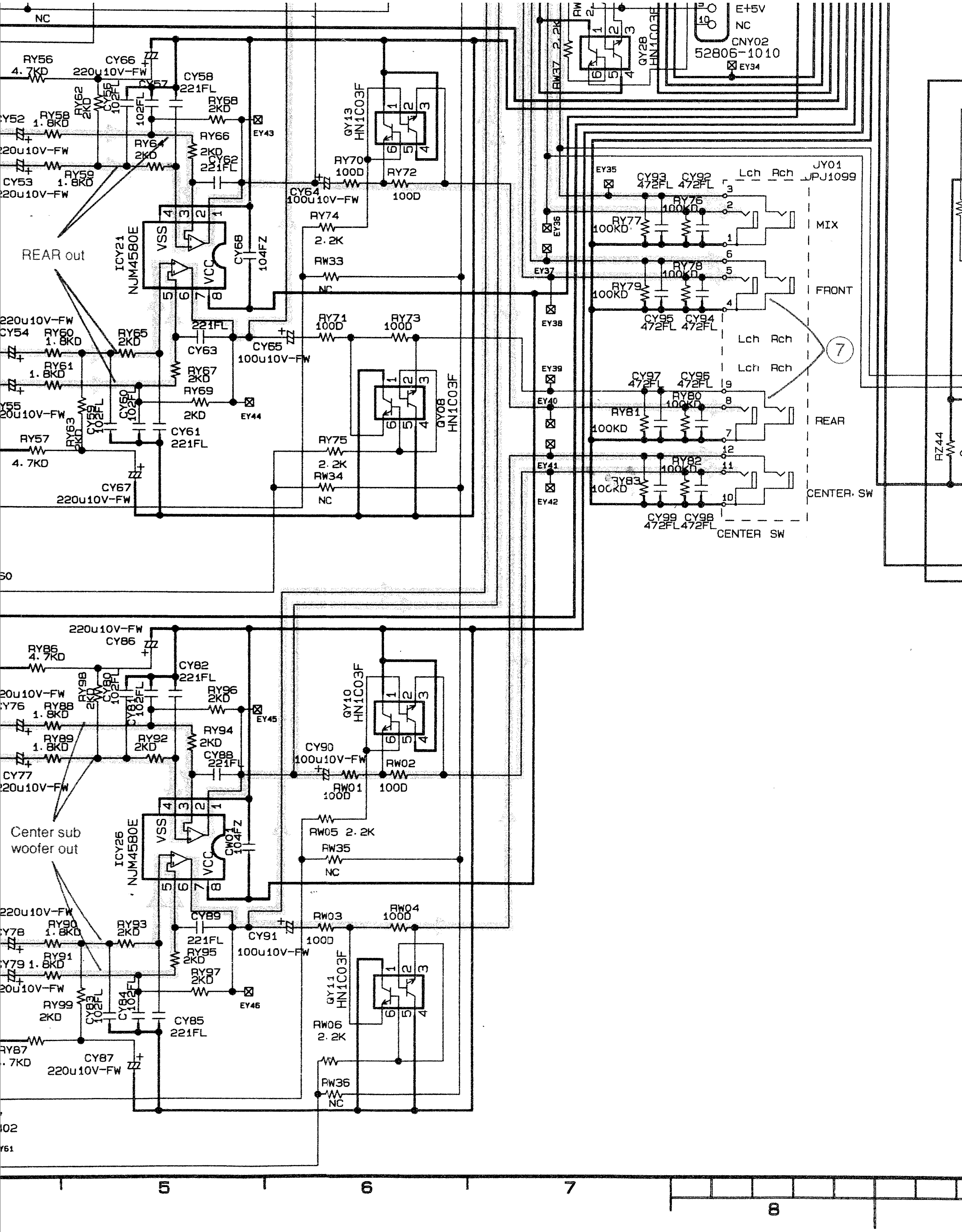
QY05
SWITCH

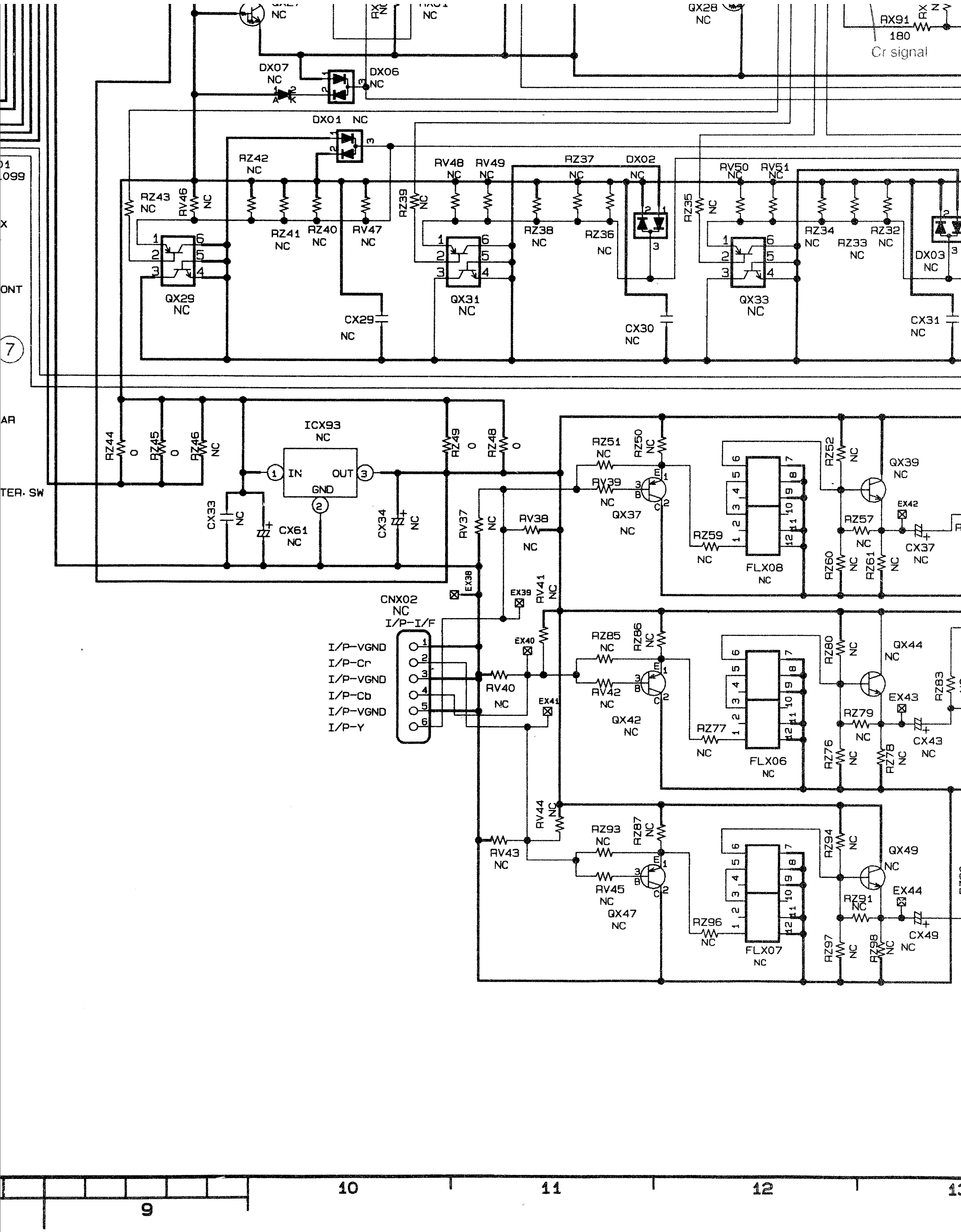
E	0
C	0
B	4.7

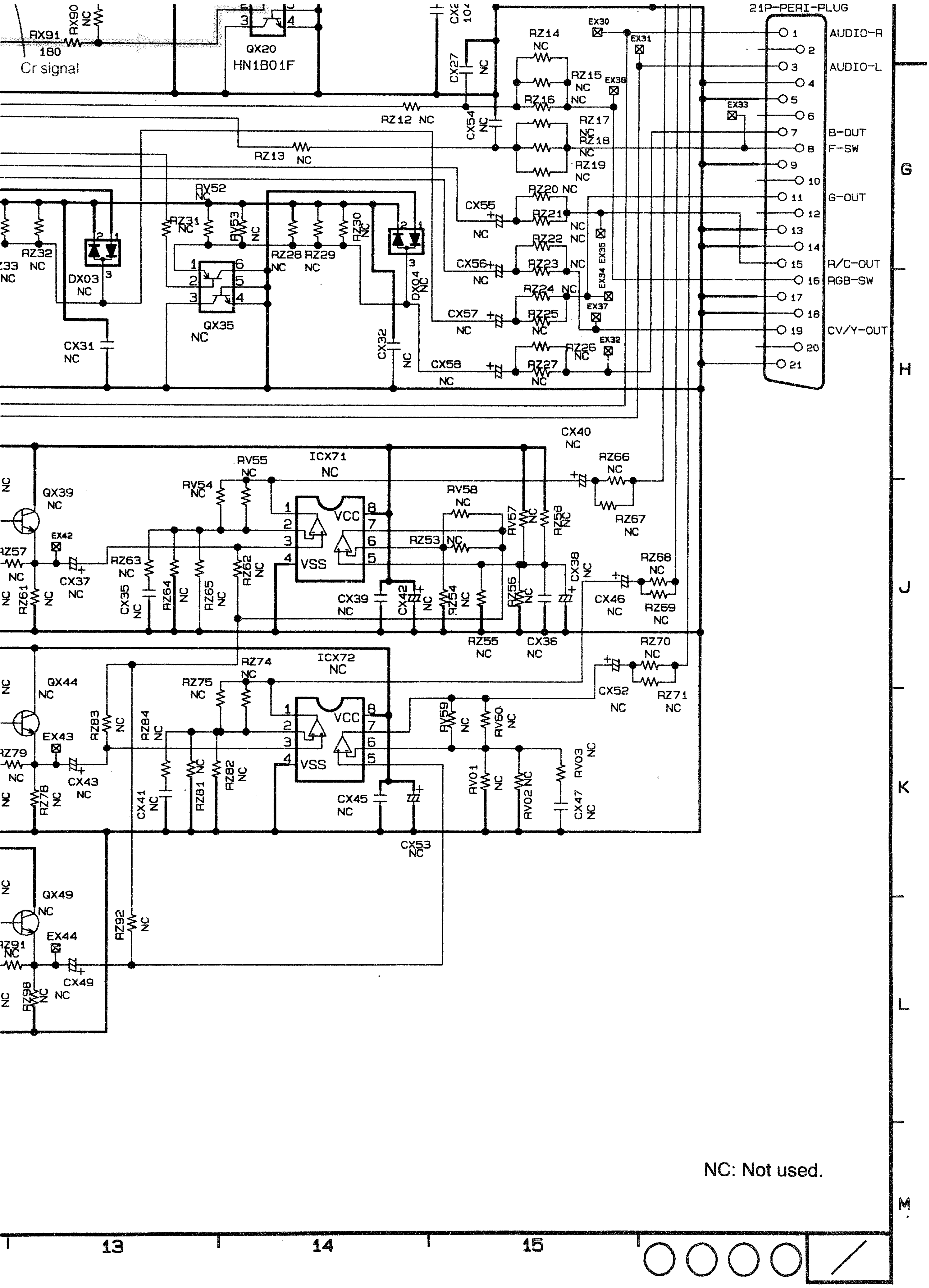
QY23
SWITCH

E	4.9
C	0
B	4.9


G
H
J
K
L
M
1
2
3
4
Audio data signal (Rear, Center, Sub woofer)
Audio data signal (Front)
Audio data signal (Center sub woofer)
REAR out
Center sub woofer out
RW20 100
CW10 220u10V-FW
DY02 1SS368
QY20 RN2402
QY21 RN2402
QY19 RN2402
EY64
LY11 ZA102
CY50 10u50V-FW
CY51 103BK
RY56 4.7KD
CY66 220u10V-FW
NC
CY52 220u10V-FW
RY58 1.8KD
RY62 2KD
CY56 102FL
CY53 220u10V-FW
RY59 1.8KD
LY08 ZA102
RW08 100
CY46 103BK
RY55 10K
CW02 104FZ
ICY20 AD1855JRS
DVDD SDATA BCLK LRCK RSTX MUTE ZEROL IDPM0 IDPM1 REF AVDD LO+ LO- AGND
DGND MCLK CLATCH CCLK CDATA 384/256 X2MCK ZEROR DEMP 96/48 AGND RO+ RO- FILT
ICY17 TC7W241FU
GND
VCC
ICY21 NJM4580E
CY54 220u10V-FW
RY60 1.8KD
RY65 2KD
RY61 1.8KD
CY55 220u10V-FW
CY59 102FL
CY60 102FL
RY63 2KD
CY48 103BK
CY49 100u10V-FW
RY57 4.7KD
CY67 220u10V-FW
EY56
EY47
CY47 104FZ
ICY19 TC7S32F
ICY18 TC7S08F
QY12 RN4601
RW25 NC
CW12 220u10V-FW
EY60
QY16 RN2402
RW17 100
DY04 1SS368
QY24
QY25 RN2402
LY09 ZA102
CY86 220u10V-FW
RY86 4.7KD
RY98 2KD
CY80 102FL
CY81 102FL
LY10 ZA102
CY73 103BK
CY72 10u50V-FW
CY76 220u10V-FW
RY88 1.8KD
RY89 1.8KD
CY77 220u10V-FW
RY84 100
RY85 10K
CY70 103BK
CY69 104FZ
ICY22 TC7W241FU
ICY25 AD1855JRS
ICY26 NJM4580E
CY78 220u10V-FW
RY90 1.8KD
RY93 2KD
CY79 220u10V-FW
RY91 1.8KD
RY99 2KD
CY83 102FL
CY84 102FL
RW18 100
DY05 1SS368
CW13 220u10V-FW
QY26 RN2402
QY27 RN2402
CY74 103BK
CY75 100u10V-FW
RY87 4.7KD
CY87 220u10V-FW
EY57
EY48
CY71 104FZ
ICY23 TC7S08F
ICY24 TC7S32F
RW26 NC
QY09 RN4601
QY17 RN2402
EY61


NC
E+5V
NC
CNY02
52806-1010
EY34
RW37 2.2K
QY28
HN1C03F
RY56
4.7KD
CY66
220u10V-FW
CY58
221FL
CY67
RY62
2KD
CY56
102FL
CY52
RY58
1.8KD
RY68
2KD
EY43
RY66
2KD
220u10V-FW
RY64
2KD
CY62
221FL
RY59
1.8KD
CY53
220u10V-FW
QY13
HN1C03F
RY70
100D
RY72
100D
CY64
100u10V-FW
RY74
2.2K
RW33
NC
REAR out
ICY21
NJM4580E
VSS
VCC
CY68
104FZ
220u10V-FW
CY54
RY60
1.8KD
RY65
2KD
221FL
CY63
CY65
100u10V-FW
RY71
100D
RY73
100D
QY08
HN1C03F
RY61
1.8KD
RY67
2KD
RY69
2KD
EY44
CY55
220u10V-FW
CY59
102FL
CY50
102FL
CY61
221FL
RY63
2KD
RY57
4.7KD
RY75
2.2K
RW34
NC
CY67
220u10V-FW
EY35
CY93
472FL
CY92
472FL
Lch
Rch
JY01
JPJ1099
RY76
100KD
RY77
100KD
MIX
EY36
EY37
RY78
100KD
RY79
100KD
FRONT
CY95
472FL
CY94
472FL
EY38
Lch
Rch
Lch
Rch
⑦
EY39
EY40
CY97
472FL
CY96
472FL
RY80
100KD
RY81
100KD
REAR
EY41
EY42
RY82
100KD
RY83
100KD
CENTER, SW
CY99
472FL
CY98
472FL
CENTER SW
RZ44
220u10V-FW
CY86
RY86
4.7KD
CY82
221FL
RY98
2KD
CY80
102FL
CY81
102FL
220u10V-FW
CY76
RY88
1.8KD
RY96
2KD
EY45
QY10
HN1C03F
RY94
2KD
RY89
1.8KD
RY92
2KD
CY88
221FL
CY90
100u10V-FW
RW02
100D
RW01
100D
CY77
220u10V-FW
Center sub woofer out
ICY26
NJM4580E
VSS
VCC
CW01
104FZ
RW05 2.2K
RW35
NC
220u10V-FW
CY78
RY90
1.8KD
RY93
2KD
CY89
221FL
CY91
100u10V-FW
RW03
100D
RW04
100D
CY79
RY91
1.8KD
RY95
2KD
RY97
2KD
EY46
QY11
HN1C03F
220u10V-FW
RY99
2KD
CY83
102FL
CY84
102FL
CY85
221FL
RW06
2.2K
RY87
4.7KD
CY87
220u10V-FW
RW36
NC
402
Y61
5
6
7
8


QX28
NC
RX91
180
Cr signal
DX07
NC
DX06
NC
A
K
DX01 NC
RZ42
NC
RV48
NC
RV49
NC
RZ37
NC
DX02
NC
RV50
NC
RV51
NC
01
1099
X
ONT
7
AR
TER. SW
RZ43
NC
RV46
NC
RZ41
NC
RZ40
NC
RV47
NC
RZ39
NC
RZ38
NC
RZ36
NC
RZ35
NC
RZ34
NC
RZ33
NC
RZ32
NC
DX03
NC
QX29
NC
QX31
NC
QX33
NC
CX29
NC
CX30
NC
CX31
NC
RZ44
0
RZ45
0
RZ46
NC
ICX93
NC
IN
OUT
GND
RZ49
0
RZ48
0
CX33
NC
CX61
NC
CX34
NC
RV37
NC
RV38
NC
RZ51
NC
RZ50
NC
RV39
NC
QX37
NC
RZ59
NC
FLX08
NC
RZ52
NC
QX39
NC
EX42
RZ57
NC
CX37
NC
RZ60
NC
RZ61
NC
EX38
EX39
RV41
NC
CNX02
NC
I/P-I/F
I/P-VGND
I/P-Cr
I/P-VGND
I/P-Cb
I/P-VGND
I/P-Y
EX40
RV40
NC
EX41
RZ85
NC
RZ86
NC
RV42
NC
QX42
NC
RZ77
NC
FLX06
NC
RZ80
NC
QX44
NC
EX43
RZ79
NC
CX43
NC
RZ76
NC
RZ78
NC
RZ83
RV44
NC
RV43
NC
RZ93
NC
RZ87
NC
RV45
NC
QX47
NC
RZ96
NC
FLX07
NC
RZ94
NC
QX49
NC
EX44
RZ91
NC
CX49
NC
RZ97
NC
RZ98
NC
9
10
11
12
13


Cr signal
RX91
180
RX90
NC
QX20
HN1B01F
CX27
NC
CX54
NC
RZ12 NC
RZ13 NC
RZ14
NC
RZ15
NC
RZ16
NC
RZ17
NC
RZ18
NC
RZ19
NC
RZ20 NC
RZ21
NC
RZ22 NC
RZ23
NC
RZ24 NC
RZ25
NC
RZ26
NC
RZ27
NC
EX30
EX31
EX32
EX33
EX34
EX35
EX36
EX37
CX55
NC
CX56
NC
CX57
NC
CX58
NC
21P-PERI-PLUG
AUDIO-R
AUDIO-L
B-OUT
F-SW
G-OUT
R/C-OUT
RGB-SW
CV/Y-OUT
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
RV52
NC
RZ31
NC
RV53
NC
RZ28
NC
RZ29
NC
RZ30
NC
RZ32
NC
RZ33
NC
DX03
NC
DX04
NC
QX35
NC
CX31
NC
CX32
NC
QX39
NC
EX42
RZ57
NC
RZ61
NC
CX37
NC
RZ63
NC
CX35
NC
RZ64
NC
RZ65
NC
RV54
NC
RV55
NC
RZ62
NC
ICX71
NC
VCC
VSS
RV58
NC
RZ53 NC
RV57
NC
RZ58
NC
CX39
NC
CX42
NC
RZ54
NC
RZ55
NC
RZ56
NC
CX36
NC
CX38
NC
CX40
NC
RZ66
NC
RZ67
NC
RZ68
NC
RZ69
NC
CX46
NC
RZ70
NC
RZ71
NC
CX52
NC
QX44
NC
EX43
RZ79
NC
RZ78
NC
CX43
NC
RZ83
NC
RZ84
NC
RZ75
NC
RZ74
NC
CX41
NC
RZ81
NC
RZ82
NC
ICX72
NC
CX45
NC
CX53
NC
RV59
NC
RV60
NC
RV01
NC
RV02
NC
RV03
NC
CX47
NC
QX49
NC
EX44
RZ91
NC
RZ98
NC
CX49
NC
RZ92
NC
G
H
J
K
L
M
13
14
15

NC: Not used.

Fig. 3-5-6

2	0
3	1.2
4	4.9
5	6.5

ICY03
OP AMP

1	4.9
2	4.9
3	4.9
4	4.9
5	4.9
6	4.9
7	4.9
8	9.2

ICY04
OP AMP

1	4.9
2	4.9
3	4.9
4	0
5	4.9
6	4.9
7	4.9
8	9.2

D-IN	2.5
VCC	4.9
GND	0

ICY11
OSCILLATOR

1	4.9
2	0
3	0
4	0
5	0
6	4.9
7	2.5
8	4.9

ICY15
3-STATE
BUFFER

1	0
2	0
3	0
4	0
5	0
6	2.5
7	4.9
8	4.9

4	3.2
5	3.5
6	0
7	0
8	0
9	0
10	0
11	0
12	2.3
13	2.4
14	2.4
15	0
16	2.4
17	2.3
18	4.9
19	3.3
20	0
21	0
22	0
23	0
24	4.9
25	2.4
26	2.4
27	1.3
28	4.9

2	0
3	0
4	0
5	4.9

1	4.9
2	4.9
3	4.9
4	0
5	4.9
6	4.9
7	4.9
8	9.2

ICY27
D-FLIP-FLOP

1	2.6
2	2.5
3	2.5
4	0
5	2.5
6	4.9
7	4.9
8	4.9

OR GATE

1	0
2	0
3	0
4	0
5	4.9

ICY33
3-STATE
BUFFER

1	0
2	0
3	0
4	0
5	0
6	2.5
7	4.9
8	4.9

Transistor

QY01
SWITCH

1	4.9
2	4.9
3	4.9
4	0
5	0
6	0

QY02
SWITCH

1	0
2	0
3	0
4	0
5	0
6	0

QY03
SWITCH

1	0
2	0
3	0
4	0
5	0
6	0

QY06
SWITCH

1	0
2	0
3	0
4	0
5	0
6	0

QY07
SWITCH

1	0
2	0
3	0
4	0
5	0
6	0

QY08
SWITCH

1	0
2	0
3	0
4	0
5	0
6	0

QY09
SWITCH

1	4.9
2	4.9
3	4.9
4	0
5	0
6	0

QY10
SWITCH

1	0
2	0
3	0
4	0
5	0
6	0

QY11
SWITCH

1	0
2	0
3	0
4	0
5	0
6	0

QY12
SWITCH

1	4.9
2	4.9
3	4.9
4	0
5	0
6	0

QY13
SWITCH

1	0
2	0
3	0
4	0
5	0
6	0

QY18
SWITCH

1	4.9
2	4.9
3	4.9
4	0
5	0
6	0

QY29
REGURATOR

1	9.2
2	7.4
3	6.5
4	8.2
5	9.2
6	8.2

QY30
REGURATOR

1	9.2
2	7.4
3	6.5
4	8.2
5	9.2
6	8.2

QX01
BUFFER

1	1.8
2	1.1
3	0
4	2.1
5	1.4
6	0

QX02
BUFFER

1	2.1
2	1.4
3	0
4	2.1
5	1.4
6	0

QX04
BUFFER

1	2.7
2	2.0
3	0
4	2.4
5	1.7
6	0

QX05
BUFFER

1	2.7
2	2.0
3	0
4	2.7
5	2.0
6	0

QX06
BUFFER

1	9.2
2	2.7
3	2.1
4	9.2
5	2.4
6	1.8

QX07
MIX AMP
BUFFER

1	9.2
2	1.6
3	1.0
4	6.0
5	6.0
6	5.5

QX08
DRIVER

1	–
2	5.4
3	9.2
4	4.7
5	5.4
6	0

QX10
DRIVER

1	3.4
2	2.7
3	0
4	0
5	0
6	0

QX12
DRIVER

1	3.1
2	2.4
3	0
4	0
5	0
6	0

QX16
SWITCH

1	3.1
2	2.4
3	0
4	0
5	0
6	0

QX18
DRIVER

1	2.6
2	2.6
3	0
4	0
5	0
6	0

QX20
DRIVER

1	2.6
2	2.0
3	0
4	0
5	0
6	0

QX22
SWITCH

1	0
2	0.7
3	0
4	0
5	0.7
6	0

QY05
SWITCH

E	0
C	0
B	4.7

QY14
SWITCH

E	0
C	0
B	4.7

QY15
SWITCH

E	4.9
C	0
B	4.9

QY16
SWITCH

E	4.9
C	0
B	4.9

QY17
SWITCH

E	4.9
C	0
B	4.9

QY19
SWITCH

E	4.9
C	0
B	4.9

QY20
SWITCH

E	4.9
C	0
B	4.9

QY21
SWITCH

E	4.9
C	0
B	4.9

QY22
SWITCH

E	4.9
C	0
B	4.9

QY23
SWITCH

E	4.9
C	0
B	4.9

QY24
SWITCH

E	4.9
C	0
B	4.9

QY25
SWITCH

E	4.9
C	0
B	4.9

QY26
SWITCH

E	4.9
C	0
B	4.9

QY27
SWITCH

E	4.9
C	0
B	4.9

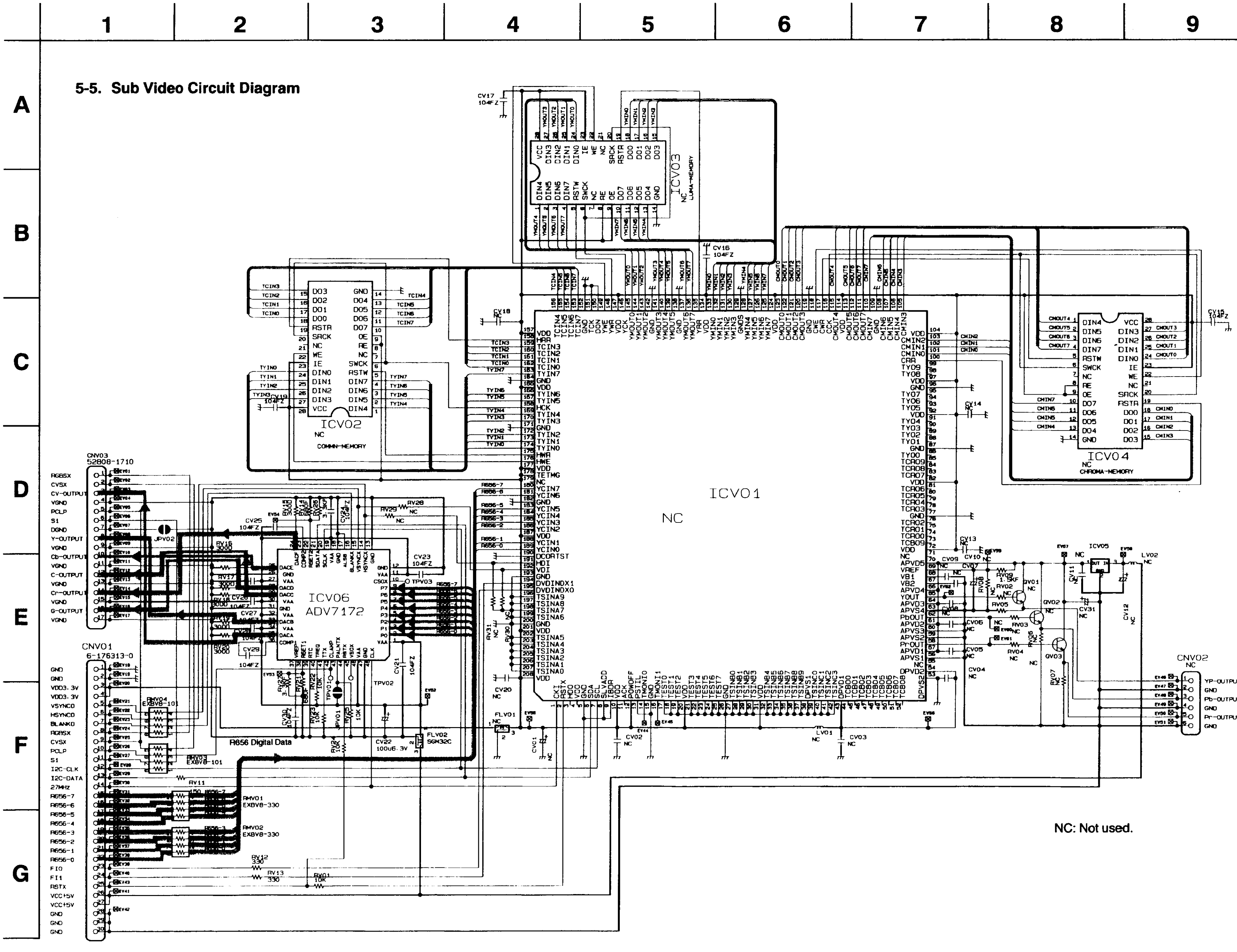
QX15
SWITCH

E	0
C	–
B	0/3.3

QX23
SWITCH

E	3.6
C	9.2
B	4.9

5-5. Sub Video Circuit Diagram

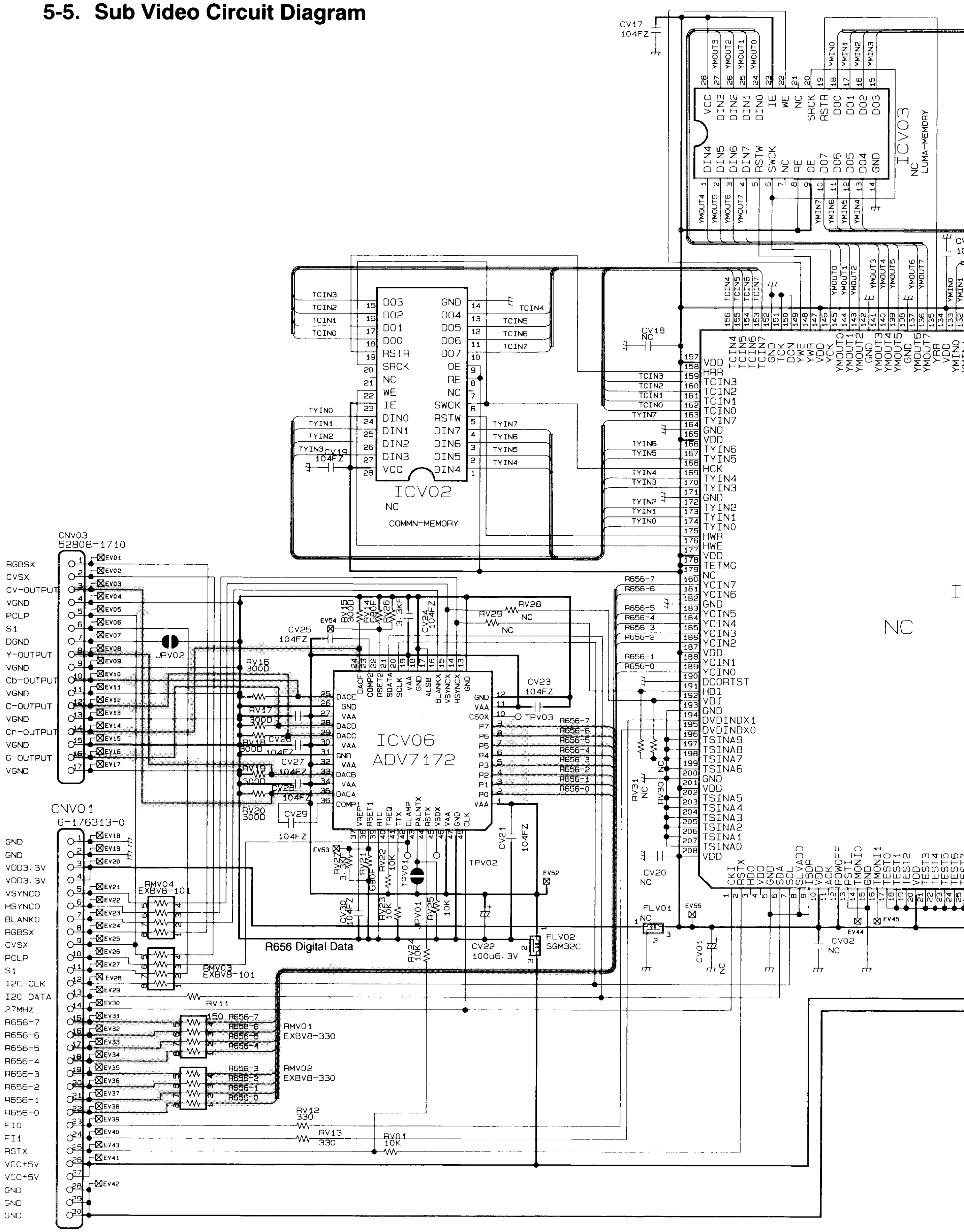

1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
G
ICV01
NC
ICV02
NC
COMMN-MEMORY
ICV03
NC
LUMA-MEMORY
ICV04
NC
CHROMA-MEMORY
ICV05
ICV06
ADV7172
CNV01
6-176313-0
CNV02
NC
CNV03
52808-1710
R656 Digital Data
RGBSX
CVSX
CV-OUTPUT
VGND
PCLP
S1
DGND
Y-OUTPUT
Cb-OUTPUT
C-OUTPUT
Cr-OUTPUT
G-OUTPUT
GND
VDD3.3V
VSYNC0
HSYNC0
BLANK0
I2C-CLK
I2C-DATA
27MHz
R656-7
R656-6
R656-5
R656-4
R656-3
R656-2
R656-1
R656-0
FI0
FI1
RSTX
VCC+5V
YP-OUTPUT
Pb-OUTPUT
Pr-OUTPUT
RMV01
EXBV8-330
RMV02
EXBV8-330
RMV03
EXBV8-101
RMV04
EXBV8-101
FLV01
FLV02
SGM32C
JPV01
JPV02
TPV01
TPV02
TPV03
QV01
QV02
QV03
LV01
LV02
CV22
100u6.3V
CV16
104FZ
CV17
104FZ

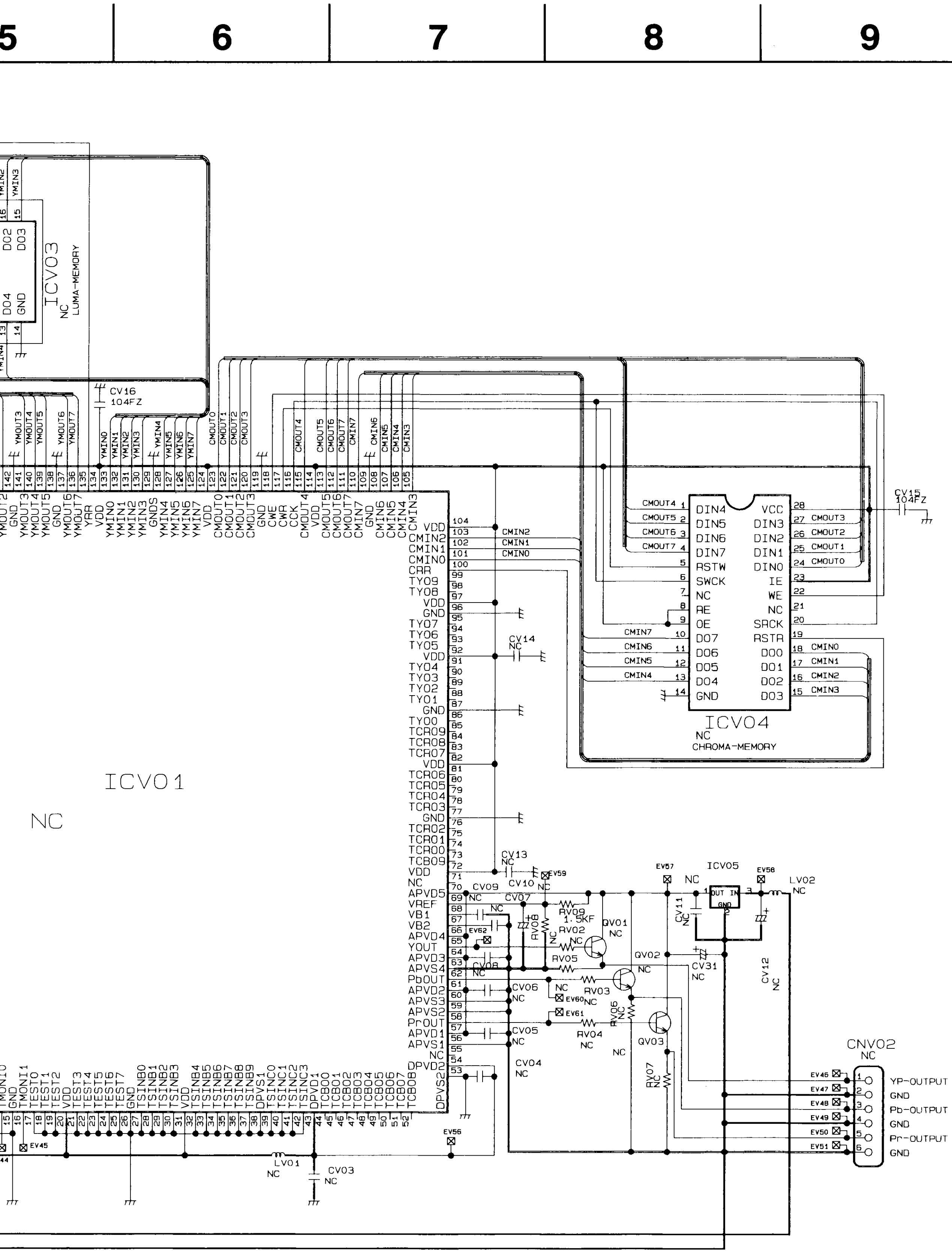
NC: Not used.

Part No.	Location	Part No.	Location
CNV01	E1	EV41	G1
CNV02	E9	EV42	G1
CNV03	D1	EV43	G1
CV01	F4	EV44	F5
CV02	F5	EV45	F5
CV03	F6	EV46	F9
CV04	E7	EV47	F9
CV05	E7	EV48	F9
CV06	E7	EV49	F9
CV07	E7	EV50	F9
CV08	E7	EV51	F9
CV09	E7	EV52	F3
CV10	E7	EV53	E2
CV11	E8	EV54	D2
CV12	E8	EV55	F4
CV13	D7	EV56	F7
CV14	C7	EV57	D8
CV15	C9	EV58	D8
CV16	B6	EV59	E7
CV17	A4	EV60	E8
CV18	C4	EV61	E8
CV19	C2	EV62	E7
CV20	F4	FLV01	F4
CV21	E3	FLV02	F3
CV22	F3	ICV01	D6
CV23	E3	ICV02	C3
CV24	D3	ICV03	A5
CV25	D2	ICV04	D8
CV26	E2	ICV05	D8
CV27	E2	ICV06	E3
CV28	E2	JPV01	F3
CV29	E2	JPV02	D1
CV30	F1	LV01	F6
CV31	E8	LV02	E9
EV01	D1	QV01	E8
EV02	D1	QV02	E8
EV03	D1	QV03	E8
EV04	D1	RMV01	F1
EV05	D1	RMV02	G2
EV06	D1	RMV03	F1
EV07	D1	RMV04	F1
EV08	D1	RV01	G3
EV09	D1	RV02	E8
EV10	D1	RV03	E8
EV11	E1	RV04	E8
EV12	E1	RV05	E8
EV13	E1	RV06	E8
EV14	E1	RV07	E8
EV15	E1	RV08	E7
EV16	E1	RV09	E8
EV17	E1	RV11	F1
EV18	E1	RV12	G2
EV19	E1	RV13	G2
EV20	F1	RV14	D2
EV21	F1	RV15	D2
EV22	F1	RV16	D2
EV23	F1	RV17	E2
EV24	F1	RV18	E2
EV25	F1	RV19	E2
EV26	F1	RV20	E2
EV27	F1	RV21	F1
EV28	F1	RV22	E3
EV29	F1	RV23	F3
EV30	F1	RV24	F3
EV31	F1	RV25	F3
EV32	F1	RV26	D3
EV33	G1	RV27	F1
EV34	G1	RV28	D3
EV35	G1	RV29	D3
EV36	G1	RV30	E4
EV37	G1	RV31	E4
EV38	G1	TPV01	F3
EV39	G1	TPV02	F3
EV40	G1	TPV03	E3

Fig. 3-5-8

5-5. Sub Video Circuit Diagram


1
2
3
4
5
A
B
C
D
E
F
G
CV17 104FZ
ICV03 NC LUMA-MEMORY
ICV02 NC COMMN-MEMORY
ICV06 ADV7172
CNV03 52808-1710
RGBSX
CVSX
CV-OUTPUT
VGND
PCLP
S1
DGND
Y-OUTPUT
VGND
Cb-OUTPUT
VGND
C-OUTPUT
VGND
Cr-OUTPUT
VGND
G-OUTPUT
VGND
JPV02
CNV01 6-176313-0
GND
GND
VDD3.3V
VDD3.3V
VSYNC0
HSYNC0
BLANK0
RGBSX
CVSX
PCLP
S1
I2C-CLK
I2C-DATA
27MHz
R656-7
R656-6
R656-5
R656-4
R656-3
R656-2
R656-1
R656-0
FI0
FI1
RSTX
VCC+5V
VCC+5V
GND
GND
GND
RMV04 EXBV8-101
RMV03 EXBV8-101
RMV01 EXBV8-330
RMV02 EXBV8-330
RV11
RV12 330
RV13 330
RV01 10K
R656 Digital Data
CV25 104FZ
CV24 104FZ
CV23 104FZ
CV21 104FZ
CV22 100u6.3V
CV29 104FZ
CV27 104FZ
CV28 104FZ
CV30 104FZ
RV15 300D
RV16 300D
RV17 300D
RV18 300D
RV19 300D
RV20 300D
RV28 NC
RV29 NC
RV24 10K
RV25 10K
RV22 10K
TPV01
TPV02
TPV03
JPV01
FLV01 NC
FLV02 SGM32C
CV01 NC
CV02 NC
CV18 NC
CV19 104FZ
CV20 NC
RV30 NC
RV31 NC
EV01–EV55
NC

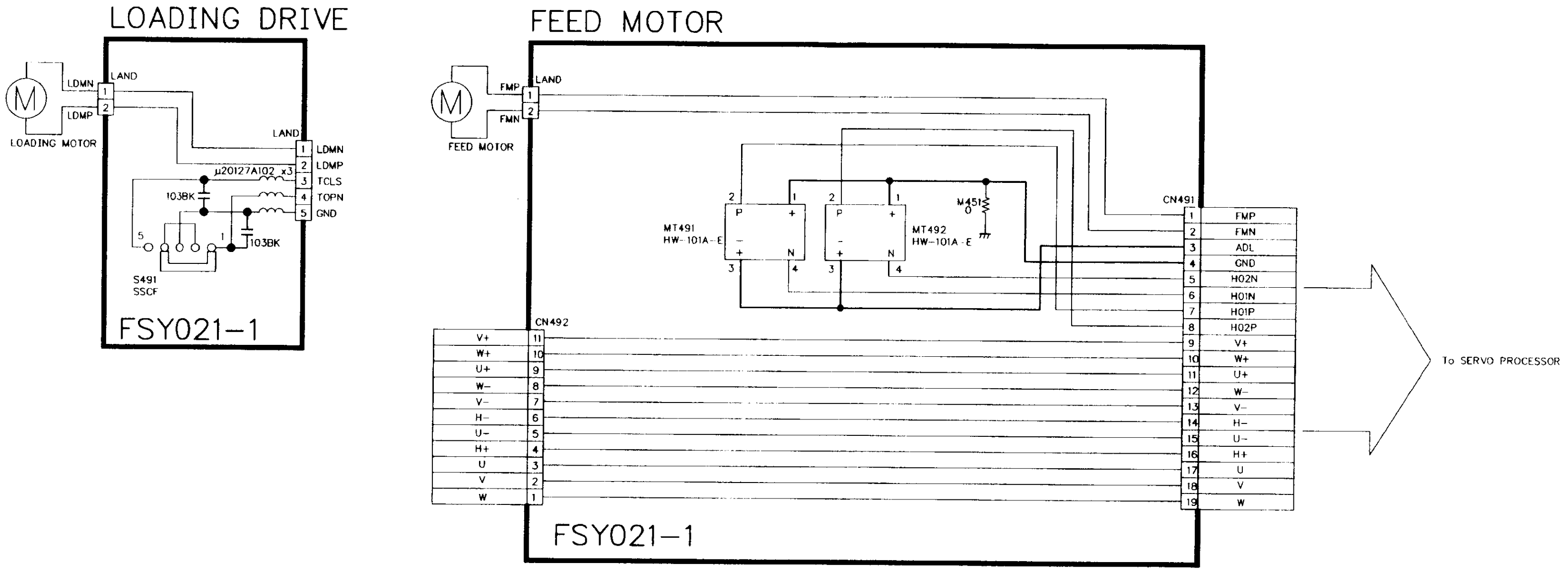

5
6
7
8
9
10
ICV03
NC
LUMA-MEMORY
ICV01
NC
ICV04
NC
CHROMA-MEMORY
ICV05
NC
CV16
104FZ
CV15
104FZ
CV14
NC
CV13
NC
CV09
CV10
CV07
CV08
CV06
CV05
CV04
CV03
CV11
CV12
CV31
LV01
LV02
RV02
RV03
RV04
RV05
RV06
RV07
RV08
RV09
1.5KF
QV01
QV02
QV03
EV45
EV46
EV47
EV48
EV49
EV50
EV51
EV56
EV57
EV58
EV59
EV60
EV61
EV62
CNV02
NC
YP-OUTPUT
GND
Pb-OUTPUT
GND
Pr-OUTPUT
GND
DIN4
DIN5
DIN6
DIN7
RSTW
SWCK
NC
RE
OE
DO7
DO6
DO5
DO4
GND
VCC
DIN3
DIN2
DIN1
DIN0
IE
WE
NC
SRCK
RSTR
DO0
DO1
DO2
DO3
CMOUT0
CMOUT1
CMOUT2
CMOUT3
CMOUT4
CMOUT5
CMOUT6
CMOUT7
CMIN0
CMIN1
CMIN2
CMIN3
CMIN4
CMIN5
CMIN6
CMIN7
YMOUT3
YMOUT4
YMOUT5
YMOUT6
YMOUT7
YMIN0
YMIN1
YMIN2
YMIN3
YMIN4
YMIN5
YMIN6
YMIN7
VDD
GND
CRR
TYO9
TYO8
TYO7
TYO6
TYO5
TYO4
TYO3
TYO2
TYO1
TYO0
TCRO9
TCRO8
TCRO7
TCRO6
TCRO5
TCRO4
TCRO3
TCRO2
TCRO1
TCRO0
TCBO9
APVD5
VREF
VB1
VB2
APVD4
YOUT
APVD3
APVS4
PbOUT
APVD2
APVS3
APVS2
PrOUT
APVD1
APVS1
DPVD2
DPVS2
TMONI1
TEST0
TEST1
TEST2
TEST3
TEST4
TEST5
TEST6
TEST7
TSINB0
TSINB1
TSINB2
TSINB3
TSINB4
TSINB5
TSINB6
TSINB7
TSINB8
TSINB9
DPVS1
TSINC0
TSINC1
TSINC2
TSINC3
DPVD1
TCBO0
TCBO1
TCBO2
TCBO3
TCBO4
TCBO5
TCBO6
TCBO7
TCBO8
YRR
GNDS
CWE
CWR
CCK

Part No.	Location	Part No.	Location
CNV01	E1	EV41	G1
CNV02	E9	EV42	G1
CNV03	D1	EV43	G1
CV01	F4	EV44	F5
CV02	F5	EV45	F5
CV03	F6	EV46	F9
CV04	E7	EV47	F9
CV05	E7	EV48	F9
CV06	E7	EV49	F9
CV07	E7	EV50	F9
CV08	E7	EV51	F9
CV09	E7	EV52	F3
CV10	E7	EV53	E2
CV11	E8	EV54	D2
CV12	E8	EV55	F4
CV13	D7	EV56	F7
CV14	C7	EV57	D8
CV15	C9	EV58	D8
CV16	B6	EV59	E7
CV17	A4	EV60	E8
CV18	C4	EV61	E8
CV19	C2	EV62	E7
CV20	F4	FLV01	F4
CV21	E3	FLV02	F3
CV22	F3	ICV01	D6
CV23	E3	ICV02	C3
CV24	D3	ICV03	A5
CV25	D2	ICV04	D8
CV26	E2	ICV05	D8
CV27	E2	ICV06	E3
CV28	E2	JPV01	F3
CV29	E2	JPV02	D1
CV30	F1	LV01	F6
CV31	E8	LV02	E9
EV01	D1	QV01	E8
EV02	D1	QV02	E8
EV03	D1	QV03	E8
EV04	D1	RMV01	F1
EV05	D1	RMV02	G2
EV06	D1	RMV03	F1
EV07	D1	RMV04	F1
EV08	D1	RV01	G3
EV09	D1	RV02	E8
EV10	D1	RV03	E8
EV11	E1	RV04	E8
EV12	E1	RV05	E8
EV13	E1	RV06	E8
EV14	E1	RV07	E8
EV15	E1	RV08	E7
EV16	E1	RV09	E8
EV17	E1	RV11	F1
EV18	E1	RV12	G2
EV19	E1	RV13	G2
EV20	F1	RV14	D2
EV21	F1	RV15	D2
EV22	F1	RV16	D2
EV23	F1	RV17	E2
EV24	F1	RV18	E2
EV25	F1	RV19	E2
EV26	F1	RV20	E2
EV27	F1	RV21	F1
EV28	F1	RV22	E3
EV29	F1	RV23	F3
EV30	F1	RV24	F3
EV31	F1	RV25	F3
EV32	F1	RV26	D3
EV33	G1	RV27	F1
EV34	G1	RV28	D3
EV35	G1	RV29	D3
EV36	G1	RV30	E4
EV37	G1	RV31	E4
EV38	G1	TPV01	F3
EV39	G1	TPV02	F3
EV40	G1	TPV03	E3

NC: Not used.

Fig. 3-5-8

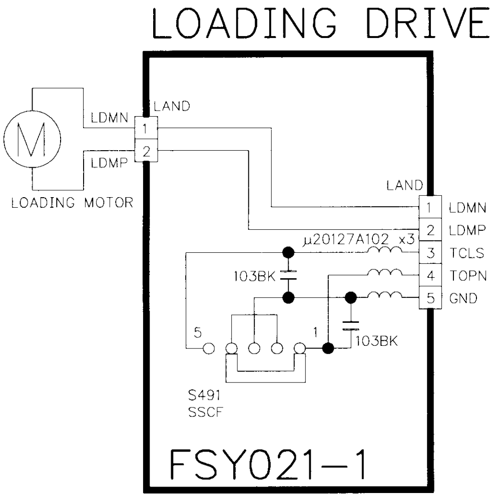
5-6. Motor System Circuit Diagrams

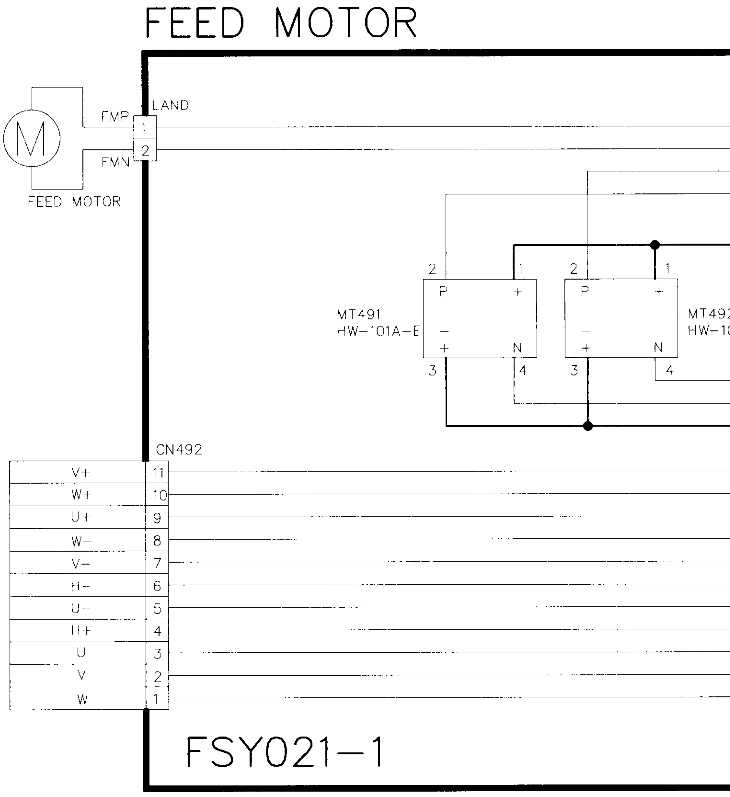

LOADING DRIVE
LOADING MOTOR
LDMN
LDMP
LAND
1
2
LAND
1 LDMN
2 LDMP
3 TCLS
4 TOPN
5 GND
µ20127A102 x3
103BK
103BK
5
1
S491
SSCF
FSY021-1
FEED MOTOR
FEED MOTOR
FMP
FMN
LAND
MT491
HW-101A-E
MT492
HW-101A-E
P
+
−
N
M451
0
CN492
11 V+
10 W+
9 U+
8 W−
7 V−
6 H−
5 U−
4 H+
3 U
2 V
1 W
CN491
1 FMP
2 FMN
3 ADL
4 GND
5 H02N
6 H01N
7 H01P
8 H02P
9 V+
10 W+
11 U+
12 W−
13 V−
14 H−
15 U−
16 H+
17 U
18 V
19 W
To SERVO PROCESSOR
FSY021-1

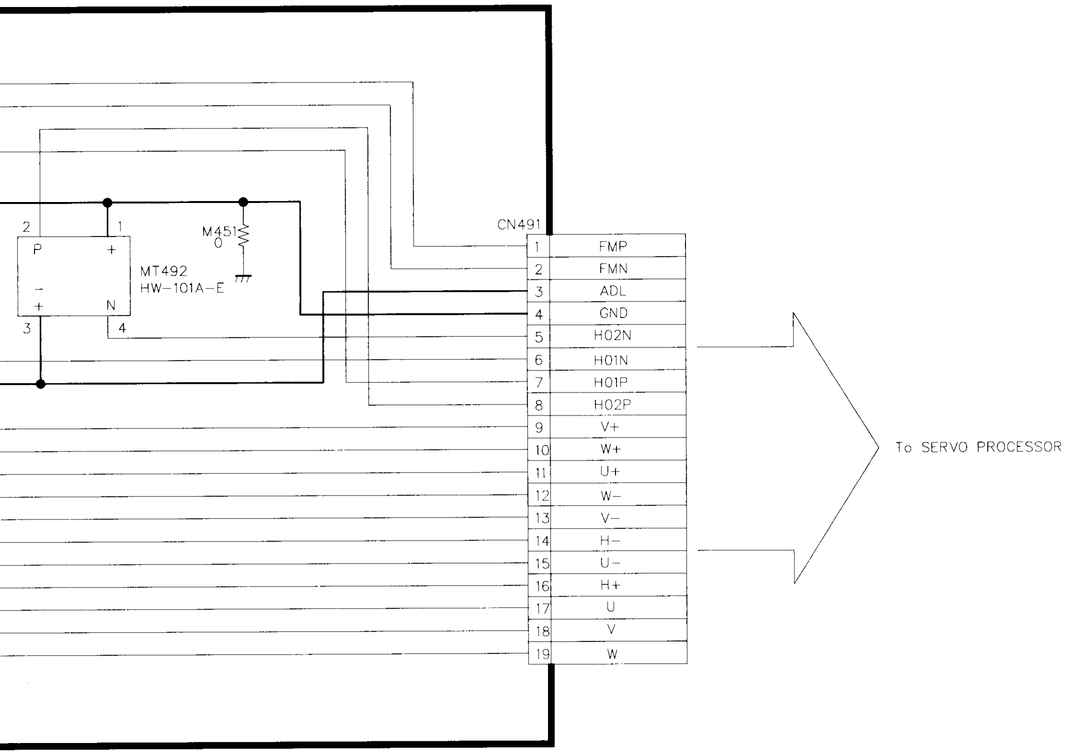
Part No.	Location
CN491	B7
CN492	C4
M451	B6
MT491	C4
MT492	C6
S491	C2

Fig. 3-5-9

5-6. Motor System Circuit Diagrams


LOADING DRIVE
LOADING MOTOR
M
LDMN
LDMP
LAND
1
2
LAND
1 LDMN
2 LDMP
3 TCLS
4 TOPN
5 GND
µ20127A102 x3
103BK
103BK
5
1
S491
SSCF
FSY021-1


FEED MOTOR
FEED MOTOR
M
FMP
FMN
LAND
1
2
MT491
HW-101A-E
P
+
−
N
MT49
HW-1
CN492
V+ 11
W+ 10
U+ 9
W− 8
V− 7
H− 6
U− 5
H+ 4
U 3
V 2
W 1
FSY021-1


2
1
P
+
−
+
N
3
4
M451
0
MT492
HW-101A-E
CN491
1 FMP
2 FMN
3 ADL
4 GND
5 H02N
6 H01N
7 H01P
8 H02P
9 V+
10 W+
11 U+
12 W−
13 V−
14 H−
15 U−
16 H+
17 U
18 V
19 W
To SERVO PROCESSOR

Part No.	Loca-tion
CN491	B7
CN492	C4
M451	B6
MT491	C4
MT492	C6
S491	C2

Fig. 3-5-9

6. PC BOARDS

6-1. Power Supply PC Board

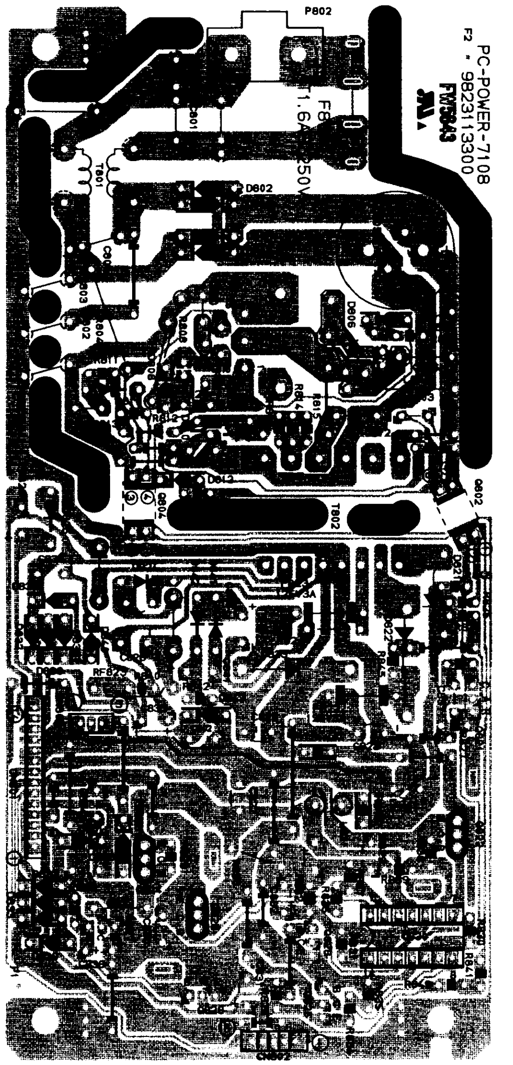


Fig. 3-6-1 EU02 Power Supply PC Board (Bottom side)

Part No.	Location	Part No.	Location
C801	B2	D842	D2
C802	C1	D843	E2
C803	C1	F801	B3
C804	C2	F822	E3
C805	C3	F823	E2
C806	C3	L801	C3
C808	C3	L821	F3
C809	D2	P802	B3
C810	C2	Q802	D3
C811	D1	Q803	D2
C812	D3	Q804	D2
C813	D2	Q821	E3
C814	D3	Q822	F3
C821	F3	Q823	F2
C822	F2	Q824	F2
C823	E3	Q825	G3
C825	E2	Q827	F2
C826	E2	Q828	F3
C828	D1	Q829	G2
C829	F3	Q830	F3
C830	F2	R803	D3
C831	G2	R804	C2
C832	F2	R805	C3
C833	F2	R806	C3
C834	F1	R807	D2
C835	E2	R808	C2
C836	D1	R809	D2
C837	E3	R811	C2
C838	G1	R812	D2
C840	E2	R813	D2
C841	E2	R814	D3
C842	E2	R815	D3
CN801	F1	R824	E2
CN802	G2	R825	E3
CN803	E1	R826	E3
D802	B2	R827	E3
D803	C2	R828	G2
D804	C2	R829	F2
D805	C2	R830	F3
D806	C3	R831	F3
D807	D2	R832	F3
D808	C2	R833	F2
D809	C3	R834	G3
D810	D2	R835	G3
D811	D2	R836	F3
D812	D2	R837	F3
D821	D3	R838	F3
D822	E3	R839	F3
D823	E2	R840	E2
D824	D2	R841	F3
D825	D1	R842	E2
D829	F1	R843	F3
D831	F1	R845	E3
D832	F1	R846	F1
D833	F1	R847	E3
D835	F2	R848	D3
D836	E1	R849	G3
D837	E1	R850	F2
D838	E1	RF823	E2
D839	E1	T801	B2
D840	E2	T802	D3
D841	D2		

6-2. Headphone AMP PC Board

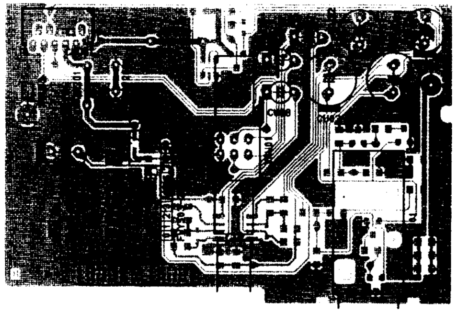


Fig. 3-6-2 EU07 Headphone AMP PC Board
(Top side)

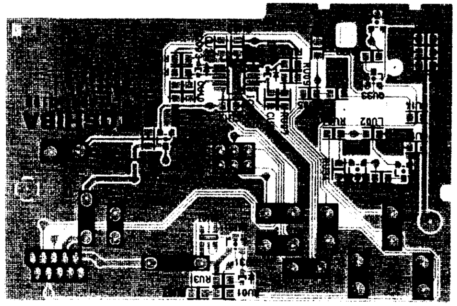


Fig. 3-6-3 EU07 Headphone AMP PC Board
(Bottom side)

Part No.	Location	Part No.	Location
CNU01	B6/ –	QU01	– /E7
CU01	B8/ –	QU03	– /E7
CU02	B8/ –	QU31	– /E7
CU03	B8/ –	QU32	– /D8
CU04	B6/ –	QU33	– /D8
CU07	B7/ –	QU34	– /D8
CU08	B7/ –	QU35	– /D8
CU09	– /E7	RU01	– /E7
CU10	– /D7	RU02	– /D7
CU11	B7/ –	RU03	– /D7
CU12	– /E7	RU04	– /D8
CU13	– /D8	RU05	– /D8
CU14	– /D8	RU06	– /D7
CU15	– /D8	RU07	– /E7
CU31	– /D7	RU08	– /D7
CU32	B8/ –	RU09	– /D8
DU01	– /E7	RU12	– /D7
DU02	– /D7	RU13	– /D7
DU03	– /D7	RU31	– /E7
DU31	– /E7	RU32	– /D8
FGU01	B8/ –	RU33	– /D8
FGU02	B6/ –	RU34	– /D8
ICU01	– /D7	RU35	– /D8
JP201	B6/ –	RU36	– /D8
JP202	B7/ –	RU37	– /E7
JP203	B7/ –	VRU01	B7/ –
JU01	B8/ –		
LU01	– /D8		
LU02	– /D8		
LU03	– /D8		

The parts location list shows
ex. A1/B1= top side/bottom side.

6. PC BOARDS

6-1. Power Supply PC Board

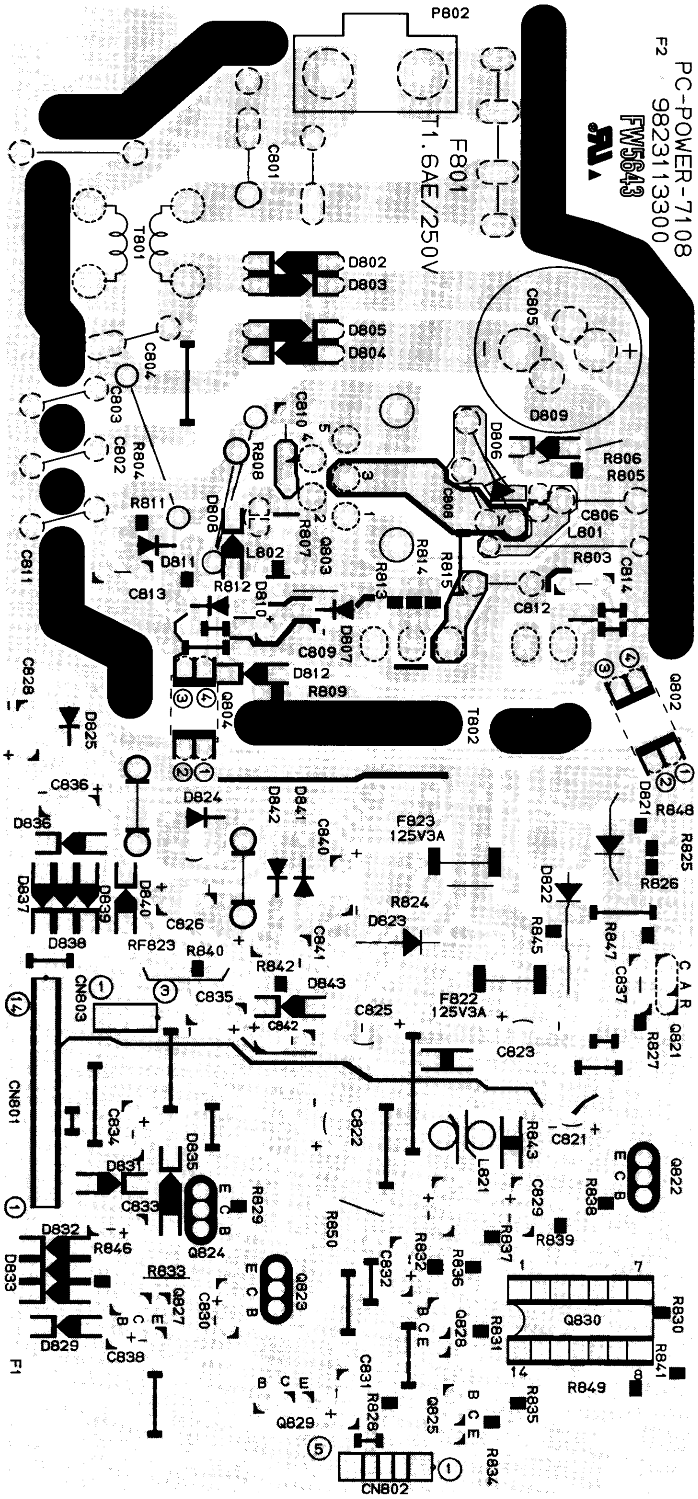

P802
PC-POWER-7108
982311300
F2
FW5643
F801
T1.6AE/250V
T801
C801
C802
C803
C804
C805
C806
C808
C809
C810
C811
C812
C813
C814
D802
D803
D804
D805
D806
D807
D808
D809
D810
D811
D812
R803
R804
R805
R806
R807
R808
R809
R811
R812
R813
R814
R815
L801
L802
Q802
Q803
Q804
T802
D821
D822
D823
D824
D825
D836
D837
D838
D839
D840
D841
D842
D843
C826
C835
C836
C840
C841
C842
C825
C837
C823
C821
C822
C834
C833
C830
C832
C831
C829
C828
C838
F823
125V3A
F822
125V3A
R824
R825
R826
R827
R828
R829
R830
R831
R832
R833
R834
R835
R836
R837
R838
R839
R840
R841
R842
R843
R845
R846
R847
R848
R849
R850
RF823
CN801
CN802
CN803
D829
D831
D832
D833
D835
Q821
Q822
Q823
Q824
Q825
Q827
Q828
Q829
Q830
L821
C A R
E C B
B C E
F1

Fig. 3-6-1 EU02 Power Supply PC Board (Bottom side)

Part No.	Location	Part No.	Location
C801	B2	D842	D2
C802	C1	D843	E2
C803	C1	F801	B3
C804	C2	F822	E3
C805	C3	F823	E2
C806	C3	L801	C3
C808	C3	L821	F3
C809	D2	P802	B3
C810	C2	Q802	D3
C811	D1	Q803	D2
C812	D3	Q804	D2
C813	D2	Q821	E3
C814	D3	Q822	F3
C821	F3	Q823	F2
C822	F2	Q824	F2
C823	E3	Q825	G3
C825	E2	Q827	F2
C826	E2	Q828	F3
C828	D1	Q829	G2
C829	F3	Q830	F3
C830	F2	R803	D3
C831	G2	R804	C2
C832	F2	R805	C3
C833	F2	R806	C3
C834	F1	R807	D2
C835	E2	R808	C2
C836	D1	R809	D2
C837	E3	R811	C2
C838	G1	R812	D2
C840	E2	R813	D2
C841	E2	R814	D3
C842	E2	R815	D3
CN801	F1	R824	E2
CN802	G2	R825	E3
CN803	E1	R826	E3
D802	B2	R827	E3
D803	C2	R828	G2
D804	C2	R829	F2
D805	C2	R830	F3
D806	C3	R831	F3
D807	D2	R832	F3
D808	C2	R833	F2
D809	C3	R834	G3
D810	D2	R835	G3
D811	D2	R836	F3
D812	D2	R837	F3
D821	D3	R838	F3
D822	E3	R839	F3
D823	E2	R840	E2
D824	D2	R841	F3
D825	D1	R842	E2
D829	F1	R843	F3
D831	F1	R845	E3
D832	F1	R846	F1
D833	F1	R847	E3
D835	F2	R848	D3
D836	E1	R849	G3
D837	E1	R850	F2
D838	E1	RF823	E2
D839	E1	T801	B2
D840	E2	T802	D3
D841	D2		

6-2. Headphone AMP PC Board

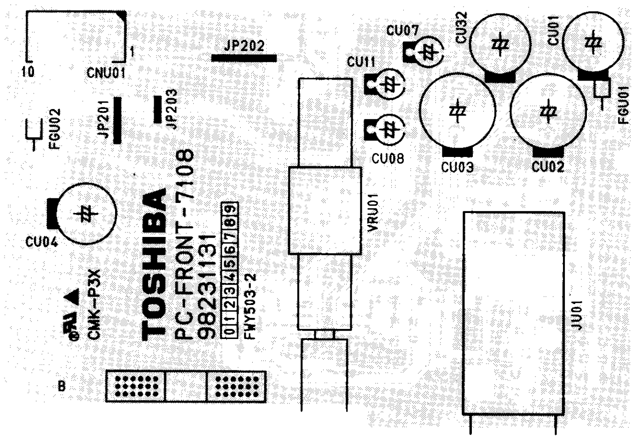

10
1
CNU01
JP202
CU07
CU32
CU01
CU11
FGU01
FGU02
JP201
JP203
CU08
CU03
CU02
CU04
TOSHIBA
PC-FRONT-7108
98231131
0 1 2 3 4 5 6 7 8 9
FWY503-2
CMK-P3X
VRU01
JU01
B

Fig. 3-6-2 EU07 Headphone AMP PC Board
(Top side)

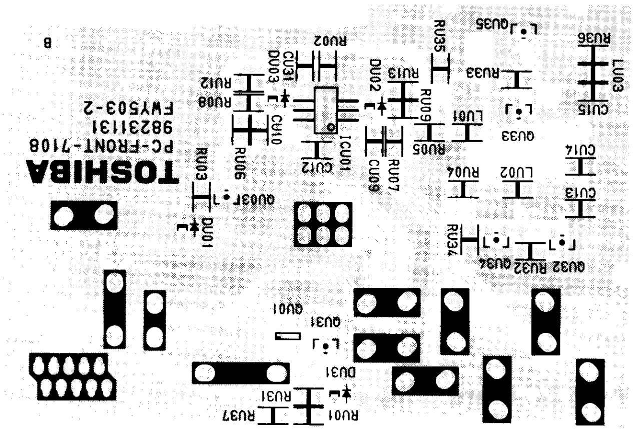

B
RU36
LU03
CU15
QU35
RU35
RU33
RU13
DU02
RU09
LU01
QU33
RU05
CU14
LU02
RU04
CU13
RU07
CU09
ICU01
CU12
CU10
RU08
RU12
DU03
CU31
RU02
RU06
RU03
QU03
DU01
RU34
QU34
RU32
QU32
QU01
QU31
DU31
RU31
RU01
RU37
TOSHIBA
PC-FRONT-7108
98231131
FWY503-2

Fig. 3-6-3 EU07 Headphone AMP PC Board
(Bottom side)

Part No.	Location
CNU01	B6/ –
CU01	B8/ –
CU02	B8/ –
CU03	B8/ –
CU04	B6/ –
CU07	B7/ –
CU08	B7/ –
CU09	– /E7
CU10	– /D7
CU11	B7/ –
CU12	– /E7
CU13	– /D8
CU14	– /D8
CU15	– /D8
CU31	– /D7
CU32	B8/ –
DU01	– /E7
DU02	– /D7
DU03	– /D7
DU31	– /E7
FGU01	B8/ –
FGU02	B6/ –
ICU01	– /D7
JP201	B6/ –
JP202	B7/ –
JP203	B7/ –
JU01	B8/ –
LU01	– /D8
LU02	– /D8
LU03	– /D8
QU01	– /E7
QU03	– /E7
QU31	– /E7
QU32	– /D8
QU33	– /D8
QU34	– /D8
QU35	– /D8
RU01	– /E7
RU02	– /D7
RU03	– /D7
RU04	– /D8
RU05	– /D8
RU06	– /D7
RU07	– /E7
RU08	– /D7
RU09	– /D8
RU12	– /D7
RU13	– /D7
RU31	– /E7
RU32	– /D8
RU33	– /D8
RU34	– /D8
RU35	– /D8
RU36	– /D8
RU37	– /E7
VRU01	B7/ –

The parts location list shows
ex. A1/B1= top side/bottom side.

1 2 3 4 5 6 7 8 9 10

A B C D E F G

6-3. Sub Video PC Board

The parts location list shows
ex. A1/B1= top side/bottom side.

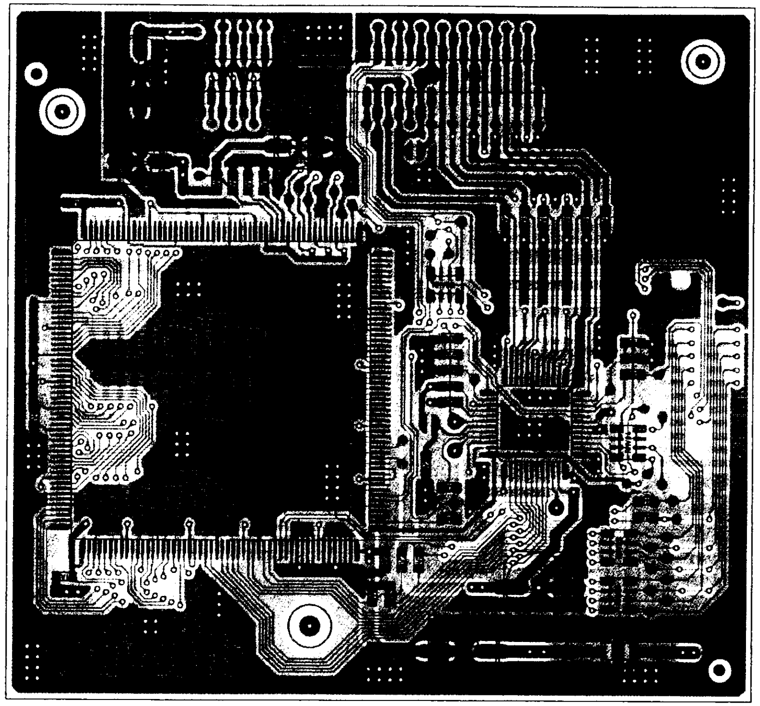


Fig. 3-6-4 EU16 Sub Video PC Board (Top side)

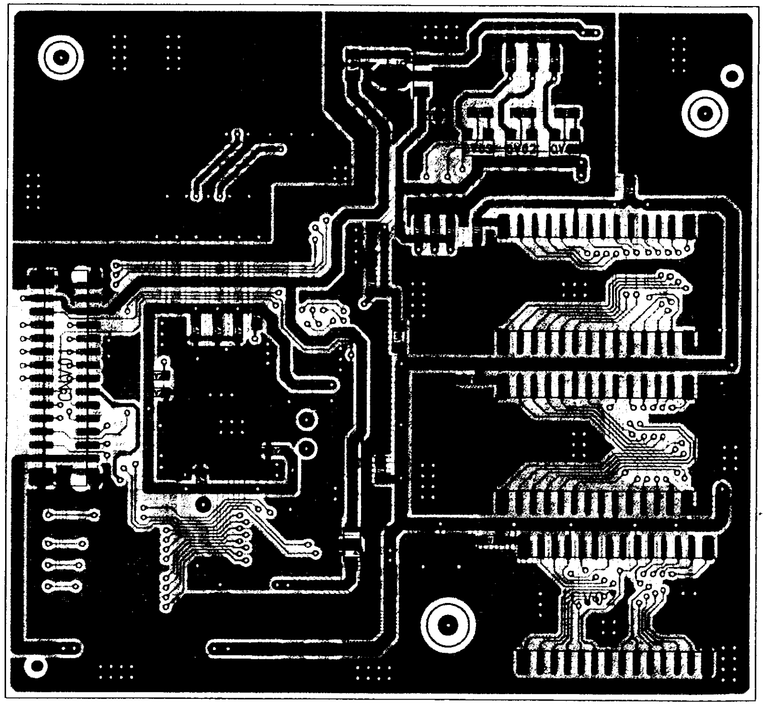


Fig. 3-6-5 EU16 Sub Video PC Board (Bottom side)

Part No.	Location
CNV01	– /C6
CNV02	B2/ –
CNV03	B3/ –
CV01	E3/ –
CV02	– /D7
CV03	– /B7
CV04	– /B7
CV05	– /C8
CV06	– /C8
CV07	– /C8
CV08	B2/ –
CV09	B2/ –
CV10	B2/ –
CV11	– /B8
CV12	B1/ –
CV13	– /B9
CV14	B1/ –
CV15	– /C8
CV16	D1/ –
CV17	– /C8
CV18	D1/ –
CV19	– /D8
CV20	D3/ –
CV21	– /D7
CV22	D3/ –
CV23	– /D7
CV24	– /C6
CV25	– /C6
CV26	– /B7
CV27	– /B7
CV28	– /B7
CV29	– /B7
CV30	C3/ –
CV31	B1/ –
FLV01	E4/ –
FLV02	– /D7
ICV01	C2/ –
ICV02	– /D8
ICV03	– /D8
ICV04	– /C8
ICV05	– /B8
ICV06	D3/ –
LV01	– /C8
LV02	– /B7
QV01	– /B8
QV02	– /B8
QV03	– /B8
RMV01	D4/ –
RMV02	D4/ –
RMV03	C3/ –
RMV04	D4/ –
RV01	D3/ –
RV02	– /B8
RV03	– /B8
RV04	– /B8
RV05	– /B8
RV06	– /B8
RV07	– /B8
RV08	B2/ –
RV09	B2/ –
RV11	C4/ –
RV12	D4/ –
RV13	D4/ –
RV14	C4/ –
RV15	B4/ –
RV16	B4/ –
RV17	B4/ –
RV18	B3/ –
RV19	B3/ –
RV20	B3/ –
RV21	C3/ –
RV22	C3/ –
RV23	C3/ –
RV24	D3/ –
RV25	D3/ –
RV26	C4/ –
RV27	C3/ –
RV28	D3/ –
RV29	D3/ –
RV30	D3/ –
RV31	D3/ –

6-3. Sub Video PC Board

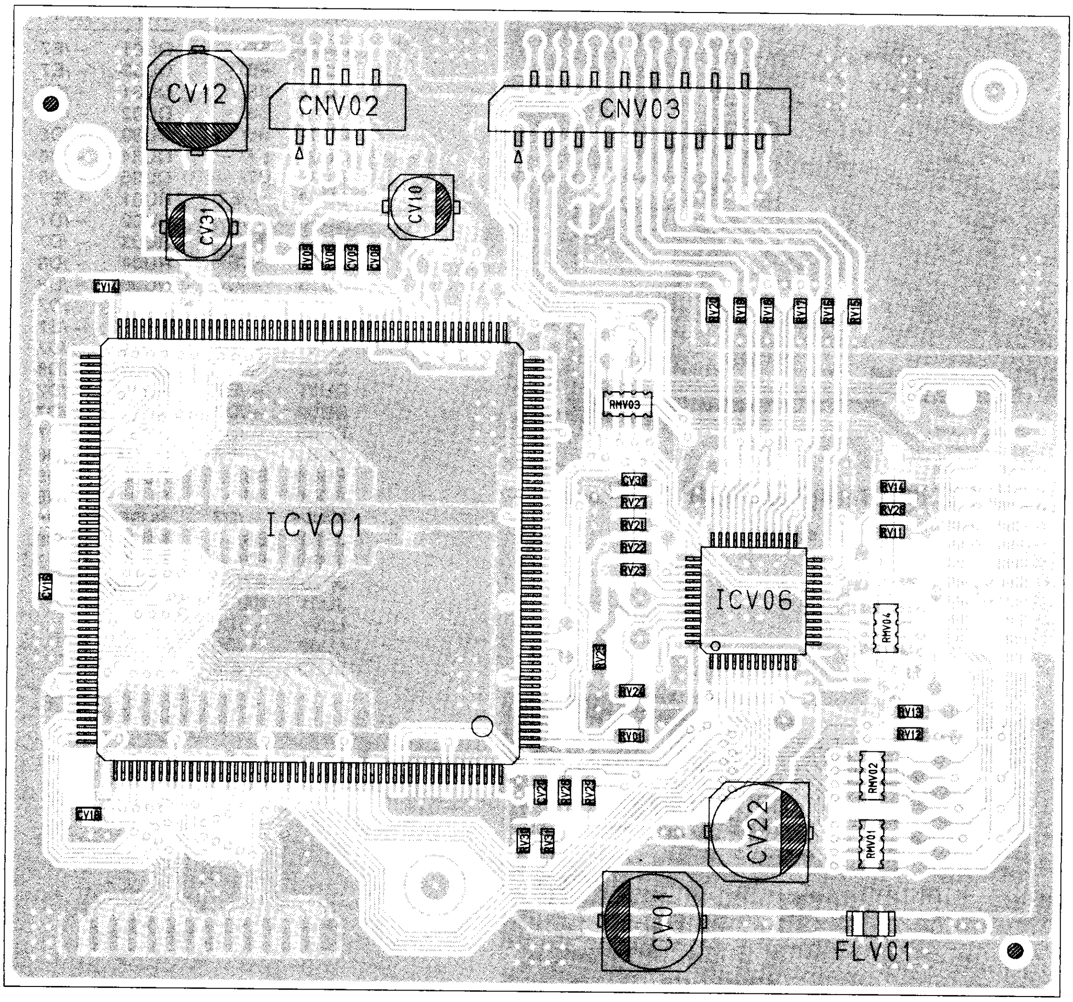

CV12
CNV02
CNV03
CV31
CV10
ICV01
RMV03
ICV06
RMV04
RMV02
RMV01
CV22
CV01
FLV01

Fig. 3-6-4 EU16 Sub Video PC Board (Top side)

The parts location list shows
ex. A1/B1 = top side/bottom side.

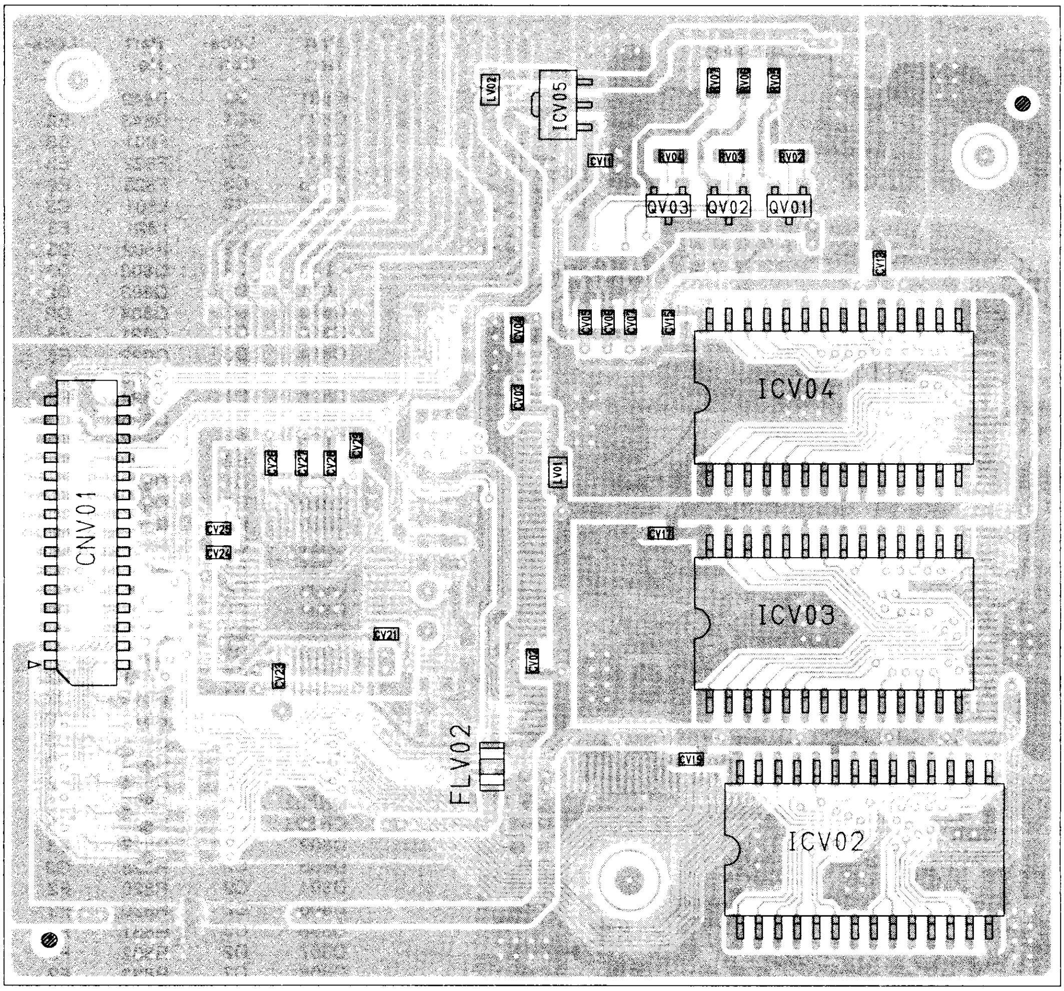

CNV01
ICV02
ICV03
ICV04
ICV05
FLV02
QV01
QV02
QV03
LV01
LV02
RV02
RV03
RV04
RV05
RV06
RV07
CV11
CV13
CV15
CV17
CV19
CV21
CV23
CV24
CV25
CV26
CV27
CV28
CV29

Fig. 3-6-5 EU16 Sub Video PC Board (Bottom side)

Part No.	Location
CNV01	– /C6
CNV02	B2/ –
CNV03	B3/ –
CV01	E3/ –
CV02	– /D7
CV03	– /B7
CV04	– /B7
CV05	– /C8
CV06	– /C8
CV07	– /C8
CV08	B2/ –
CV09	B2/ –
CV10	B2/ –
CV11	– /B8
CV12	B1/ –
CV13	– /B9
CV14	B1/ –
CV15	– /C8
CV16	D1/ –
CV17	– /C8
CV18	D1/ –
CV19	– /D8
CV20	D3/ –
CV21	– /D7
CV22	D3/ –
CV23	– /D7
CV24	– /C6
CV25	– /C6
CV26	– /B7
CV27	– /B7
CV28	– /B7
CV29	– /B7
CV30	C3/ –
CV31	B1/ –
FLV01	E4/ –
FLV02	– /D7
ICV01	C2/ –
ICV02	– /D8
ICV03	– /D8
ICV04	– /C8
ICV05	– /B8
ICV06	D3/ –
LV01	– /C8
LV02	– /B7
QV01	– /B8
QV02	– /B8
QV03	– /B8
RMV01	D4/ –
RMV02	D4/ –
RMV03	C3/ –
RMV04	D4/ –
RV01	D3/ –
RV02	– /B8
RV03	– /B8
RV04	– /B8
RV05	– /B8
RV06	– /B8
RV07	– /B8
RV08	B2/ –
RV09	B2/ –
RV11	C4/ –
RV12	D4/ –
RV13	D4/ –
RV14	C4/ –
RV15	B4/ –
RV16	B4/ –
RV17	B4/ –
RV18	B3/ –
RV19	B3/ –
RV20	B3/ –
RV21	C3/ –
RV22	C3/ –
RV23	C3/ –
RV24	D3/ –
RV25	D3/ –
RV26	C4/ –
RV27	C3/ –
RV28	D3/ –
RV29	D3/ –
RV30	D3/ –
RV31	D3/ –

6-4. Output PC Board

Note:

- The followings are processed on the output PC board.

(1) Connection between pin 6 of QX02 and pin 1 of ICY01 with a lead wire.

(2) Connection between pin 1 of ICY01 and pin 1 of ICY20 with a lead wire.

(3) Connection between pin 1 of ICY20 and pin 1 of ICY25 with a lead wire.

(4) Connection between pin 23 of CNY01 and CLK line with a shield wire. (The pattern is cut at 1 location.)

(5) Connection between pin 2 of CNY02 and pin 6 of CNY02 with a lead wire.

(6) Chip capacitor (104Z) mounts between pin 9 of CNY02 and pin 10 of CNY02.

(7) Chip beads core mounts on pin 4 line of CNY02. (The pattern is cut at 1 location.)

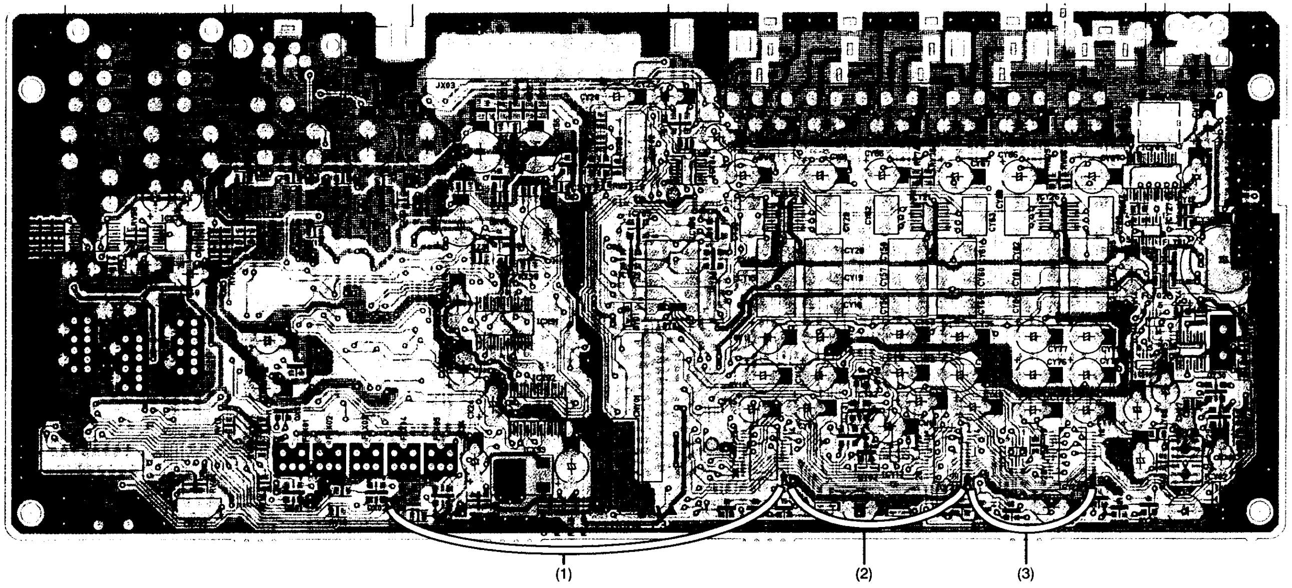


Fig. 3-6-6 EU05 Output PC Board (Top side)

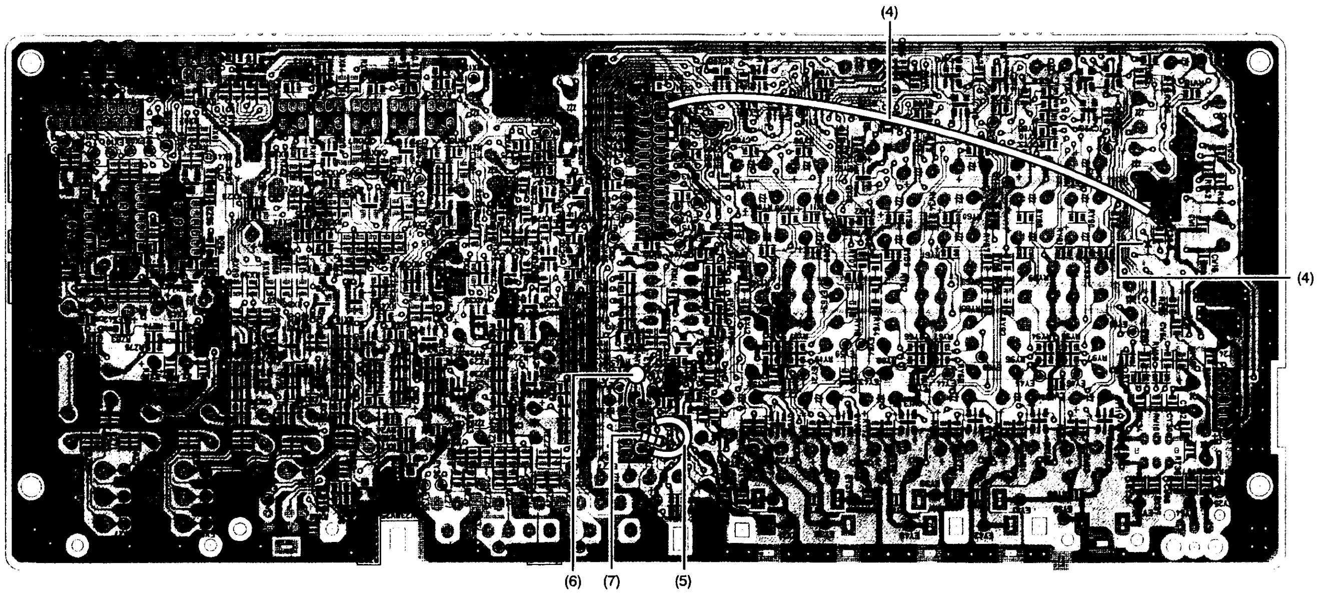


Fig. 3-6-7 EU05 Output PC Board (Bottom side)

6-4. Output PC Board

Note:

- The followings are processed on the output PC board.

(1) Connection between pin 6 of QX02 and pin 1 of ICY01 with a lead wire.

(2) Connection between pin 1 of ICY01 and pin 1 of ICY20 with a lead wire.

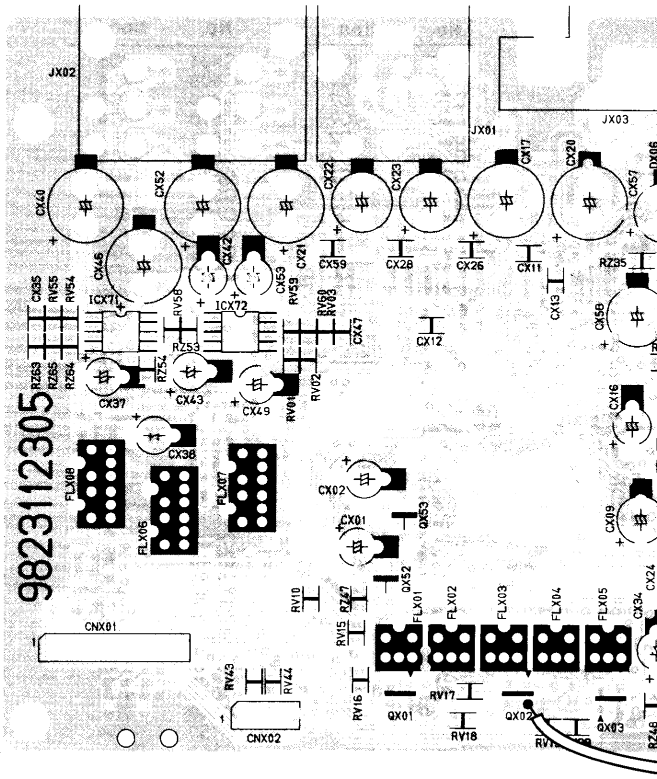
(3) Connection between pin 1 of ICY20 and pin 1 of ICY25 with a lead wire.

(4) Connection between pin 23 of CNY01 and CLK line with a shield wire. (The pattern is cut at 1 location.)

(5) Connection between pin 2 of CNY02 and pin 6 of CNY02 with a lead wire.

(6) Chip capacitor (104Z) mounts between pin 9 of CNY02 and pin 10 of CNY02.

(7) Chip beads core mounts on pin 4 line of CNY02. (The pattern is cut at 1 location.)


JX02
JX01
JX03
CX40
CX52
CX22
CX23
CX17
CX20
CX46
CX42
CX21
CX59
CX28
CX26
CX11
ICX71
ICX72
CX35
RV55
RV54
RV58
CX53
RV59
RV60
RV03
CX47
CX12
CX13
RZ63
RZ65
RZ64
RZ53
RZ54
CX37
CX43
CX49
RV01
RV02
CX38
9823112305
FLX08
FLX06
FLX07
CX02
CX01
QX53
QX52
RV10
RZ47
RV15
FLX01
FLX02
FLX03
FLX04
FLX05
CNX01
RV43
RV44
RV16
QX01
RV17
RV18
QX02
QX03
CNX02
CX16
CX09
CX24
CX34
RZ35

Fi

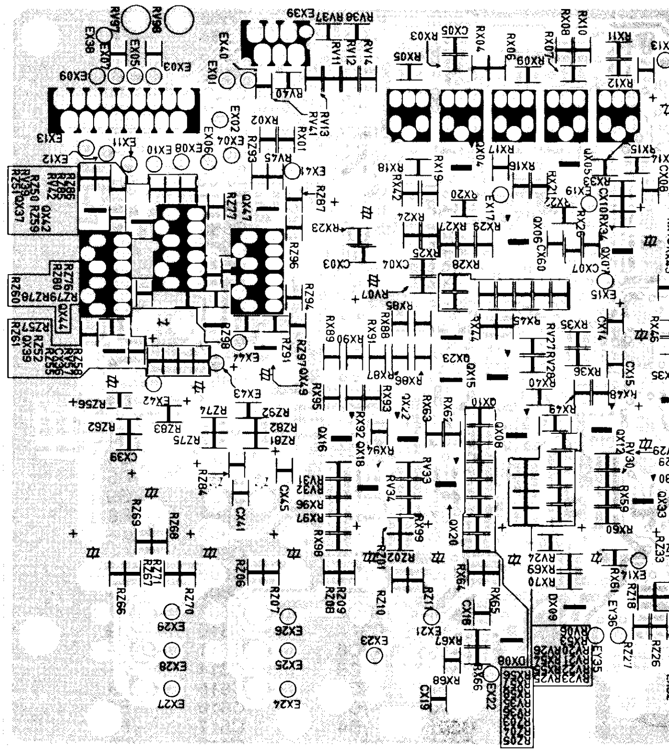
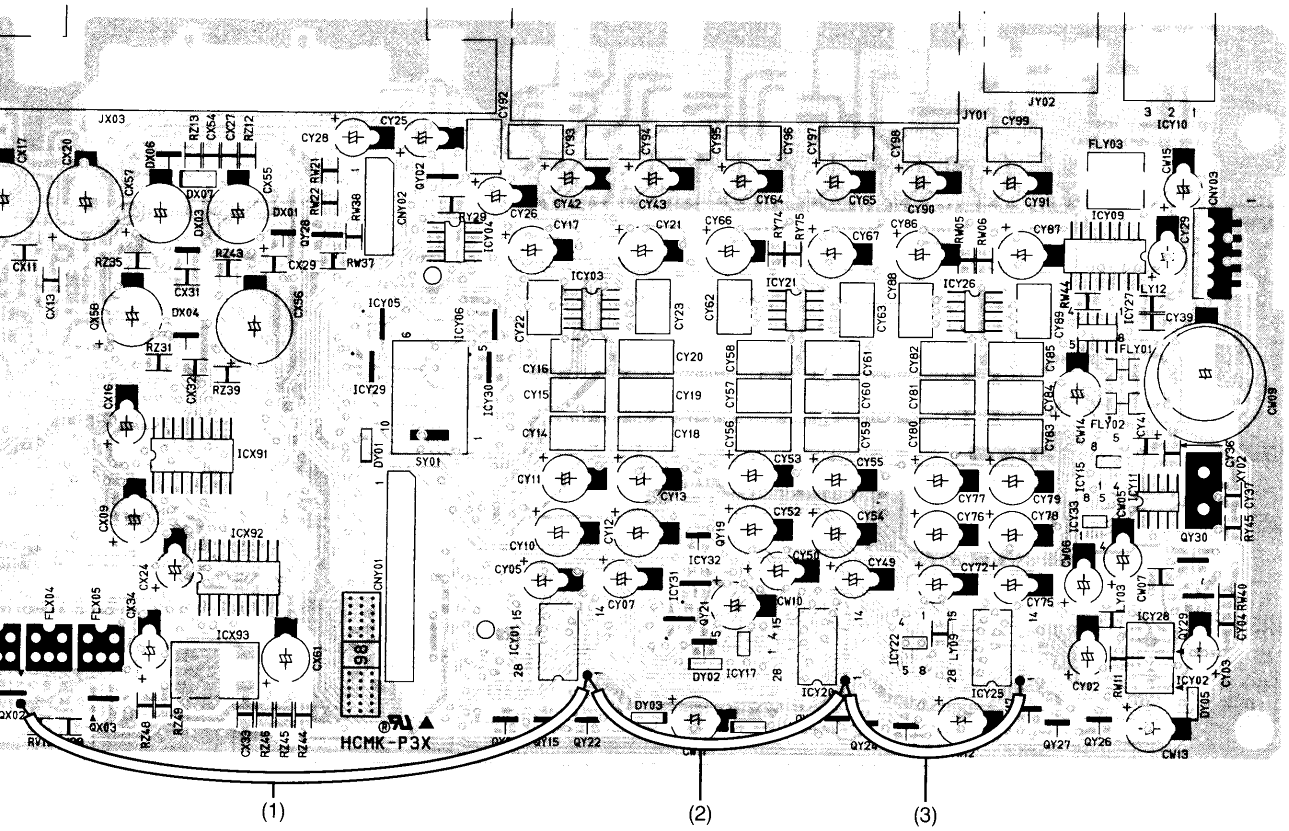


Fig.



JX03
JY01
JY02
ICY10
FLY03
ICY09
CN03
CY09
ICX91
ICX92
ICX93
FLX04
FLX05
CNY01
CNY02
SY01
ICY05
ICY06
ICY29
ICY30
ICY01
ICY03
ICY21
ICY26
ICY20
ICY25
ICY28
QY30
HCMK-P3X
(1)
(2)
(3)

Fig. 3-6-6 EU05 Output PC Board (Top side)

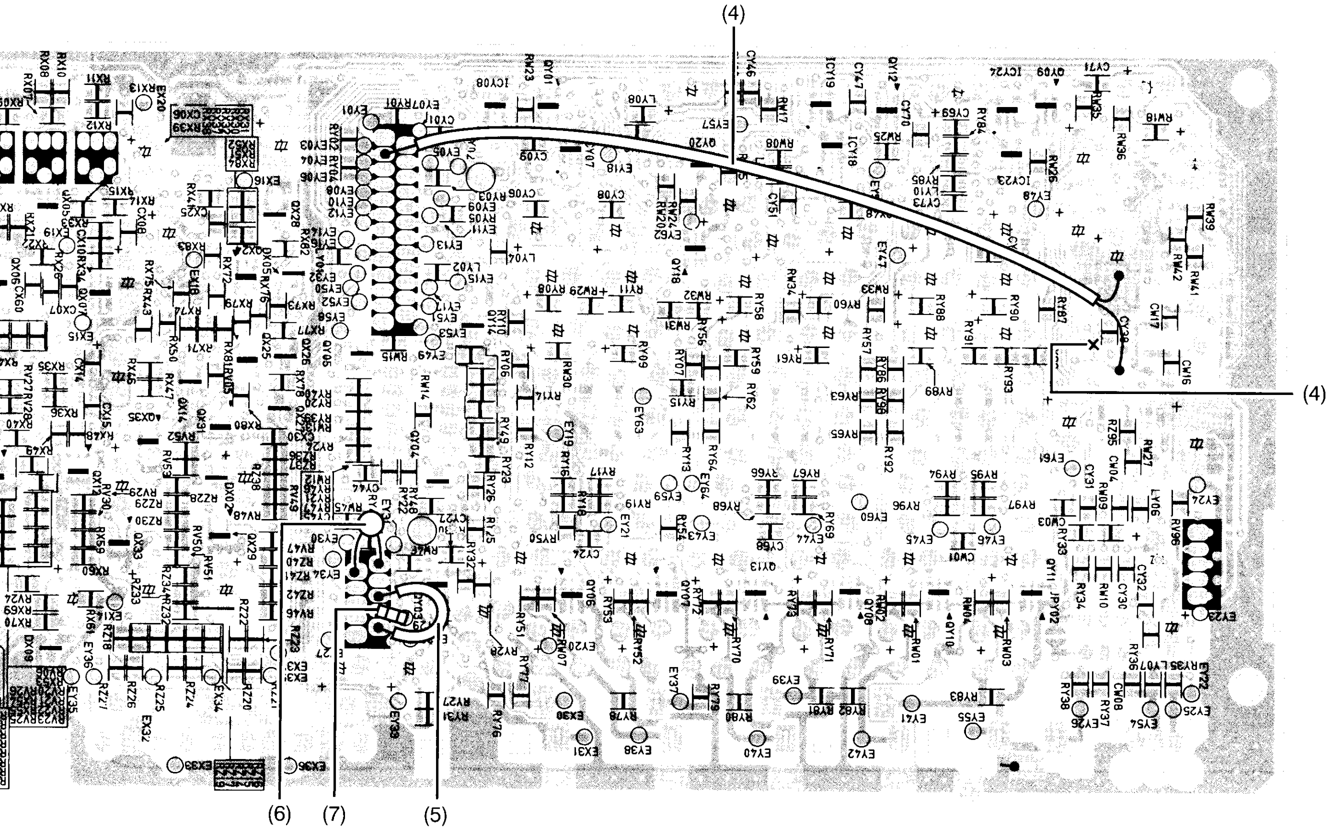


Fig. 3-6-7 EU05 Output PC Board (Bottom side)

Part No.	Location	Part No.
CNX01	C4/–	CY13
CNX02	D4/–	CY14
CNY01	C7/–	CY15
CNY02	B7/–	CY16
CNY03	A9/–	CY17
CW01	–/F9	CY18
CW02	–/D8	CY19
CW03	–/F9	CY20
CW04	–/F9	CY21
CW05	C9/–	CY22
CW06	C9/–	CY23
CW07	C9/–	CY24
CW08	–/G9	CY25
CW09	B10/–	CY26
CW10	C8/–	CY27
CW11	D8/–	CY28
CW12	D9/–	CY29
CW13	D9/–	CY30
CW14	B9/–	CY31
CW15	A9/–	CY32
CW16	–/F9	CY36
CW17	–/E9	CY37
CX01	C5/–	CY38
CX02	C5/–	CY39
CX03	–/E5	CY41
CX04	–/E5	CY42
CX05	–/D5	CY43
CX06	–/E6	CY44
CX07	–/E5	CY45
CX08	–/E6	CY46
CX09	C6/–	CY47
CX10	–/E6	CY48
CX11	B5/–	CY49
CX12	B5/–	CY50
CX13	B5/–	CY51
CX14	–/F6	CY52
CX15	–/F6	CY53
CX16	B6/–	CY54
CX17	A5/–	CY55
CX18	–/G5	CY56
CX19	–/G5	CY57
CX20	A5/–	CY58
CX21	B5/–	CY59
CX22	A5/–	CY60
CX23	A5/–	CY61
CX24	C6/–	CY62
CX25	–/E6	CY63
CX26	B5/–	CY64
CX27	A6/–	CY65
CX28	B5/–	CY66
CX29	B6/–	CY67
CX30	–/F6	CY68
CX31	B6/–	CY69
CX32	B6/–	CY70
CX33	D6/–	CY71
CX34	C6/–	CY72
CX35	B4/–	CY73
CX36	–/F4	CY74
CX37	B4/–	CY75
CX38	B4/–	CY76
CX39	–/F4	CY77
CX40	B4/–	CY78
CX41	–/F4	CY79
CX42	B4/–	CY80
CX43	B4/–	CY81
CX45	–/F4	CY82
CX46	B4/–	CY83
CX47	B5/–	CY84
CX49	B4/–	CY85
CX52	A4/–	CY86
CX53	B4/–	CY87
CX54	A6/–	CY88
CX55	A6/–	CY89
CX56	B6/–	CY90
CX57	A6/–	CY91
CX58	B6/–	CY92
CX59	B5/–	CY93
CX60	–/E5	CY94
CX61	C6/–	CY95
CY01	–/E7	CY96
CY02	C9/–	CY97
CY03	C9/–	CY98
CY04	C10/–	CY99
CY05	C7/–	DX01
CY06	–/E7	DX02
CY07	C7/–	DX03
CY08	–/E7	DX04
CY09	–/E7	DX05
CY10	C7/–	DX06
CY11	B7/–	DX07
CY12	C7/–	DX08

Part No.	Location
CNX01	C4/–
CNX02	D4/–
CNY01	C7/–
CNY02	B7/–
CNY03	A9/–
CW01	–/F9
CW02	–/D8
CW03	–/F9
CW04	–/F9
CW05	C9/–
CW06	C9/–
CW07	C9/–
CW08	–/G9
CW09	B10/–
CW10	C8/–
CW11	D8/–
CW12	D9/–
CW13	D9/–
CW14	B9/–
CW15	A9/–
CW16	–/F9
CW17	–/E9
CX01	C5/–
CX02	C5/–
CX03	–/E5
CX04	–/E5
CX05	–/D5
CX06	–/E6
CX07	–/E5
CX08	–/E6
CX09	C6/–
CX10	–/E6
CX11	B5/–
CX12	B5/–
CX13	B5/–
CX14	–/F6
CX15	–/F6
CX16	B6/–
CX17	A5/–
CX18	–/G5
CX19	–/G5
CX20	A5/–
CX21	B5/–
CX22	A5/–
CX23	A5/–
CX24	C6/–
CX25	–/E6
CX26	B5/–
CX27	A6/–
CX28	B5/–
CX29	B6/–
CX30	–/F6
CX31	B6/–
CX32	B6/–
CX33	D6/–
CX34	C6/–
CX35	B4/–
CX36	–/F4
CX37	B4/–
CX38	B4/–
CX39	–/F4
CX40	B4/–
CX41	–/F4
CX42	B4/–
CX43	B4/–
CX45	–/F4
CX46	B4/–
CX47	B5/–
CX49	B4/–
CX52	A4/–
CX53	B4/–
CX54	A6/–
CX55	A6/–
CX56	B6/–
CX57	A6/–
CX58	B6/–
CX59	B5/–
CX60	–/E5
CX61	C6/–
CY01	–/E7
CY02	C9/–
CY03	C9/–
CY04	C10/–
CY05	C7/–
CY06	–/E7
CY07	C7/–
CY08	–/E7
CY09	–/E7
CY10	C7/–
CY11	B7/–
CY12	C7/–
CY13	C8/–
CY14	B7/–
CY15	B7/–
CY16	B7/–
CY17	B7/–
CY18	B8/–
CY19	B8/–
CY20	B8/–
CY21	B8/–
CY22	B7/–
CY23	B8/–
CY24	–/F7
CY25	A7/–
CY26	B7/–
CY27	–/F7
CY28	A6/–
CY29	B9/–
CY30	–/F9
CY31	–/F9
CY32	–/F9
CY36	B9/–
CY37	B10/–
CY38	–/E9
CY39	B9/–
CY41	B9/–
CY42	B7/–
CY43	B7/–
CY44	–/F7
CY45	–/F6
CY46	–/D8
CY47	–/D8
CY48	–/E8
CY49	C8/–
CY50	C8/–
CY51	–/E8
CY52	C8/–
CY53	B8/–
CY54	C8/–
CY55	B8/–
CY56	B8/–
CY57	B8/–
CY58	B8/–
CY59	B8/–
CY60	B8/–
CY61	B8/–
CY62	B8/–
CY63	B8/–
CY64	B8/–
CY65	B8/–
CY66	B8/–
CY67	B8/–
CY68	–/F8
CY69	–/E9
CY70	–/E8
CY71	–/D9
CY72	C9/–
CY73	–/E8
CY74	–/E9
CY75	C9/–
CY76	C9/–
CY77	C9/–
CY78	C9/–
CY79	C9/–
CY80	B8/–
CY81	B8/–
CY82	B8/–
CY83	B9/–
CY84	B9/–
CY85	B9/–
CY86	B8/–
CY87	B9/–
CY88	B8/–
CY89	B9/–
CY90	B8/–
CY91	B9/–
CY92	A7/–
CY93	A7/–
CY94	A7/–
CY95	A8/–
CY96	A8/–
CY97	A8/–
CY98	A8/–
CY99	A9/–
DX01	B6/–
DX02	–/F6
DX03	B6/–
DX04	B6/–
DX05	–/E6
DX06	A6/–
DX07	A6/–
DX08	–/G5
DX09	–/G5
DY01	B7/–
DY02	C8/–
DY03	C7/–
DY04	D8/–
DY05	C9/–
EX01	–/E4
EX02	–/E4
EX03	–/E4
EX04	–/E4
EX05	–/E4
EX06	–/E4
EX07	–/E4
EX08	–/E4
EX09	–/E4
EX10	–/E4
EX11	–/E4
EX12	–/E4
EX13	–/E4
EX14	–/F6
EX15	–/E6
EX16	–/E6
EX17	–/E5
EX18	–/E6
EX19	–/E5
EX20	–/E6
EX21	–/G5
EX22	–/G5
EX23	–/G5
EX24	–/G4
EX25	–/G4
EX26	–/G4
EX27	–/G4
EX28	–/G4
EX29	–/G4
EX30	–/G7
EX31	–/G7
EX32	–/G6
EX33	–/G6
EX34	–/G6
EX35	–/G6
EX36	–/G6
EX37	–/G6
EX38	–/D4
EX39	–/D4
EX40	–/E4
EX41	–/E5
EX42	–/F4
EX43	–/F4
EX44	–/F4
EY01	–/E6
EY02	–/E7
EY03	–/E6
EY04	–/E6
EY05	–/E7
EY06	–/E6
EY07	–/E7
EY08	–/E6
EY09	–/E7
EY10	–/E6
EY11	–/E7
EY12	–/E6
EY13	–/E7
EY14	–/E6
EY15	–/E7
EY16	–/E6
EY17	–/E7
EY18	–/E7
EY19	–/F7
EY20	–/G7
EY21	–/F7
EY22	–/G9
EY23	–/F9
EY24	–/F9
EY25	–/G9
EY26	–/G9
EY27	–/G6
EY28	–/G7
EY29	–/G7
EY30	–/F6
EY31	–/F7
EY32	–/E6
EY33	–/G7
EY34	–/F6
EY35	–/G5
EY36	–/G6
EY37	–/G8
EY38	–/G7
EY39	–/G8
EY40	–/G8
EY41	–/G8
EY42	–/G8
EY43	–/F8
EY44	–/F8
EY45	–/F8
EY46	–/F9
EY47	–/E8
EY48	–/E9
EY49	–/E7
EY50	–/E6
EY51	–/E7
EY52	–/E6
EY53	–/E7
EY54	–/G9
EY55	–/G9
EY56	–/E8
EY57	–/E8
EY58	–/E6
EY59	–/F8
EY60	–/F8
EY61	–/F9
EY62	–/E8
EY63	–/F7
EY64	–/F8
FLX01	C5/–
FLX02	C5/–
FLX03	C5/–
FLX04	C5/–
FLX05	C6/–
FLX06	C4/–
FLX07	C4/–
FLX08	C4/–
FLY01	B9/–
FLY02	B9/–
FLY03	A9/–
ICX71	B4/–
ICX72	B4/–
ICX91	B6/–
ICX92	C6/–
ICX93	C6/–
ICY01	C7/–
ICY02	C9/–
ICY03	B7/–
ICY04	B7/–
ICY05	B7/–
ICY06	B7/–
ICY07	–/E7
ICY08	–/D7
ICY09	B9/–
ICY10	A9/–
ICY11	B9/–
ICY15	B9/–
ICY17	C8/–
ICY18	–/E8
ICY19	–/D8
ICY20	C8/–
ICY21	B8/–
ICY22	C8/–
ICY23	–/E9
ICY24	–/D9
ICY25	C9/–
ICY26	B9/–
ICY27	B9/–
ICY28	C9/–
ICY29	B7/–
ICY30	B7/–
ICY31	C8/–
ICY32	C8/–
ICY33	C9/–
JPY02	–/F9
JX01	A5/–
JX02	A4/–
JX03	A6/–
JY01	A9/–
JY02	A9/–
LY01	–/E6
LY02	–/E7
LY03	C9/–
LY04	–/E7
LY06	–/F9
LY07	–/G9
LY08	–/E7
LY09	C9/–
LY10	–/E8
LY11	–/E8
LY12	B9/–
QX01	C5/–
QX02	C5/–
QX03	C6/–
QX04	–/E5
QX05	–/E5
QX06	–/E5
QX07	–/E6
QX08	–/F5
QX10	–/F5
QX12	–/F6
QX14	–/F6
QX15	–/F5
QX16	–/F5
QX18	–/F5
QX20	–/F5
QX22	–/F5
QX23	–/F5
QX24	–/E6
QX25	–/E6
QX26	–/E6
QX27	–/F6
QX28	–/E6
QX29	–/F6
QX31	–/F6
QX33	–/F6
QX35	–/F6
QX37	–/E4
QX39	–/F4
QX42	–/E4
QX44	–/F4
QX47	–/E4
QX49	–/F4
QX52	C5/–
QX53	C5/–
QY01	–/D7
QY02	A7/–
QY03	–/F7
QY04	–/F7
QY05	–/E6
QY06	–/F7
QY07	–/F8
QY08	–/F8
QY09	–/D9
QY10	–/G9
QY11	–/F9
QY12	–/D8
QY13	–/F8
QY14	–/E7
QY15	D7/–
QY16	D8/–
QY17	C9/–
QY18	–/E8
QY19	C8/–
QY20	–/E8
QY21	C8/–
QY22	D7/–
QY23	D7/–
QY24	D8/–
QY25	C8/–
QY26	C9/–
QY27	D9/–
QY28	B6/–
QY29	C9/–
QY30	C9/–
RV01	B4/–
RV02	B5/–
RV03	B5/–
RV05	–/F6
RV06	–/G5
RV07	–/E5
RV10	C5/–
RV11	–/E5
RV12	–/E5
RV13	–/E5
RV14	–/E5
RV15	C5/–
RV16	C5/–
RV17	C5/–
RV18	D5/–
RV19	D5/–
RV20	–/G5
RV21	–/G5
RV22	–/G5
RV23	–/G5
RV24	–/F5
RV25	–/G5
RV26	–/G5
RV27	–/F5
RV28	–/F5
RV29	–/F6
RV30	–/F6
RV31	–/F5
RV32	–/F5
RV33	–/F5
RV34	–/F5
RV35	–/G5
RV36	–/G5
RV37	–/D5
RV38	–/D5
RV39	–/E4
RV40	–/E4
RV41	–/E5
RV42	–/E4
RV43	C4/–
RV44	C4/–
RV45	–/E4
RV46	–/F6
RV47	–/F6
RV48	–/F6
RV49	–/F6
RV50	–/F6
RV51	–/F6
RV52	–/F6
RV53	–/F6
RV54	B4/–
RV55	B4/–
RV57	–/F4
RV58	B4/–
RV59	B4/–
RV60	B5/–
RV96	–/F9
RV97	–/D4
RV98	–/D4
RV99	D5/–
RW01	–/G8
RW02	–/F8
RW03	–/G9
RW04	–/F9
RW05	B9/–
RW06	B9/–
RW07	–/G7
RW08	–/E8
RW09	–/F9
RW10	–/F9
RW11	C9/–
RW12	–/F6
RW13	–/F6
RW14	–/F7
RW15	–/E7
RW16	–/E7
RW17	–/E8
RW18	–/E9
RW20	–/E8
RW21	A6/–
RW22	B6/–
RW23	–/D7
RW24	–/E8
RW25	–/E8
RW26	–/E9
RW27	–/F9
RW29	–/E7
RW30	–/F7
RW31	–/E8
RW32	–/E8
RW33	–/E8
RW34	–/E8
RW35	–/E9
RW36	–/E9
RW37	B6/–
RW38	B6/–
RW39	–/E9
RW40	C10/–
RW41	–/E9
RW42	–/E9
RW44	B9/–
RW45	–/F6
RW46	–/F7
RX01	–/E4
RX02	–/E4
RX03	–/D5
RX04	–/D5
RX05	–/E5
RX06	–/E5
RX07	–/E5
RX08	–/D5
RX09	–/E5
RX10	–/D5
RX11	–/D6
RX12	–/E6
RX13	–/E6
RX14	–/E6
RX15	–/E6
RX16	–/E5
RX17	–/E5
RX18	–/E5
RX19	–/E5
RX20	–/E5
RX21	–/E5
RX22	–/E5
RX23	–/E5
RX24	–/E5
RX25	–/E5
RX26	–/E5
RX27	–/E5
RX28	–/E5
RX29	–/E5
RX30	–/E6
RX31	–/E6
RX32	–/E6
RX33	–/E5
RX34	–/E6
RX35	–/F5
RX36	–/F5
RX37	–/E6
RX38	–/E6
RX39	–/E6
RX40	–/F5
RX41	–/E6
RX42	–/E5
RX43	–/E6
RX44	–/F5
RX45	–/F5
RX46	–/F6
RX47	–/F6
RX48	–/F6
RX49	–/F5
RX50	–/E6
RX51	–/E6
RX52	–/E6
RX53	–/G5
RX54	–/G5
RX55	–/G5
RX56	–/G5
RX57	–/G5
RX58	–/G5
RX59	–/F6
RX60	–/F6
RX61	–/F6
RX62	–/F5
RX63	–/F5
RX64	–/F5
RX65	–/G5
RX66	–/G5
RX67	–/G5
RX68	–/G5
RX69	–/F5
RX70	–/G5
RX71	–/E6
RX72	–/E6
RX73	–/E6
RX74	–/E6
RX75	–/E6
RX76	–/E6
RX77	–/E6
RX78	–/F6
RX79	–/E6
RX80	–/F6
RX81	–/E6
RX82	–/E6
RX83	–/E6
RX84	–/E6
RX85	–/E5
RX86	–/F5
RX87	–/F5
RX88	–/F5
RX89	–/F5
RX90	–/F5
RX91	–/F5
RX92	–/F5
RX93	–/F5
RX94	–/F5
RX95	–/F5
RX96	–/F5
RX97	–/F5
RX98	–/F5
RX99	–/F5
RY01	–/E7
RY02	–/E6
RY03	–/E7
RY04	–/E6
RY05	–/E7
RY06	–/F7
RY07	–/F8
RY08	–/E7
RY09	–/E7
RY10	–/E7
RY11	–/E7
RY12	–/F7
RY13	–/F8
RY14	–/F7
RY15	–/F8
RY16	–/F7
RY17	–/F7
RY18	–/F7
RY19	–/F7
RY20	–/F6
RY21	–/F6
RY22	–/F7
RY23	–/F7
RY24	–/F6
RY25	–/F7
RY26	–/F7
RY27	–/G7
RY28	–/G7
RY29	B7/–
RY30	–/F7
RY31	–/G7
RY32	–/F7
RY33	–/F9
RY34	–/F9
RY35	–/G9
RY36	–/G9
RY37	–/G9
RY38	–/G9
RY39	–/F6
RY40	–/F6
RY41	–/F7
RY45	C10/–
RY46	–/F6
RY47	–/F6
RY48	–/F7
RY49	–/F7
RY50	–/F7
RY51	–/G7
RY52	–/G7
RY53	–/F7
RY54	–/F8
RY55	–/E8
RY56	–/E8
RY57	–/E8
RY58	–/E8
RY59	–/F8
RY60	–/E8
RY61	–/E8
RY62	–/F8
RY63	–/F8
RY64	–/F8
RY65	–/F8
RY66	–/F8
RY67	–/F8
RY68	–/F8
RY69	–/F8
RY70	–/G8
RY71	–/G8
RY72	–/F8
RY73	–/F8
RY74	B8/–
RY75	B8/–
RY76	–/G7
RY77	–/G7
RY78	–/G7
RY79	–/G8
RY80	–/G8
RY81	–/G8
RY82	–/G8
RY83	–/G9
RY84	–/E9
RY85	–/E8
RY86	–/F9
RY87	–/E9
RY88	–/E8
RY89	–/F8
RY90	–/E9
RY91	–/E9
RY92	–/F8
RY93	–/F9
RY94	–/F9
RY95	–/F9
RY96	–/F8
RY97	–/F9
RY98	–/F8
RY99	–/E9
RZ01	–/F5
RZ02	–/F5
RZ03	–/G5
RZ04	–/G5
RZ05	–/G5
RZ06	–/F4
RZ07	–/G4
RZ08	–/G5
RZ09	–/G5
RZ10	–/G5
RZ11	–/G5
RZ12	A6/–
RZ13	A6/–
RZ14	–/G6
RZ15	–/G6
RZ16	–/G6
RZ17	–/G6
RZ18	–/G6
RZ19	–/G6
RZ20	–/G6
RZ21	–/G6
RZ22	–/F6
RZ23	–/G6
RZ24	–/G6
RZ25	–/G6
RZ26	–/G6
RZ27	–/G6
RZ28	–/F6
RZ29	–/F6
RZ30	–/F6
RZ31	B6/–
RZ32	–/F6
RZ33	–/F6
RZ34	–/F6
RZ35	B6/–
RZ36	–/F6
RZ37	–/F6
RZ38	–/F6
RZ39	B6/–
RZ40	–/F6
RZ41	–/F6
RZ42	–/F6
RZ43	B6/–
RZ44	D6/–
RZ45	D6/–
RZ46	D6/–
RZ47	C5/–
RZ48	C6/–
RZ49	C6/–
RZ50	–/E4
RZ51	–/E3
RZ52	–/F4
RZ53	B4/–
RZ54	B4/–
RZ55	–/F4
RZ56	–/F4
RZ57	–/F4
RZ58	–/F4
RZ59	–/E4
RZ60	–/E3
RZ61	–/F3
RZ62	–/F4
RZ63	B4/–
RZ64	B4/–
RZ65	B4/–
RZ66	–/G4
RZ67	–/F4
RZ68	–/F4
RZ69	–/F4
RZ70	–/G4
RZ71	–/F4
RZ74	–/F4
RZ75	–/F4
RZ76	–/E4
RZ77	–/E4
RZ78	–/E4
RZ79	–/E4
RZ80	–/E4
RZ81	–/F4
RZ82	–/F4
RZ83	–/F4
RZ84	–/F4
RZ85	–/E4
RZ86	–/E4
RZ87	–/E5
RZ91	–/F4
RZ92	–/F4
RZ93	–/E4
RZ94	–/E5
RZ95	–/F9
RZ96	–/E4
RZ97	–/F4
RZ98	–/F4
SY01	B7/–
XY02	B10/–

(4)

The parts location list shows
ex. A1/B1= top side/bottom side.

6-5. Main PC Board

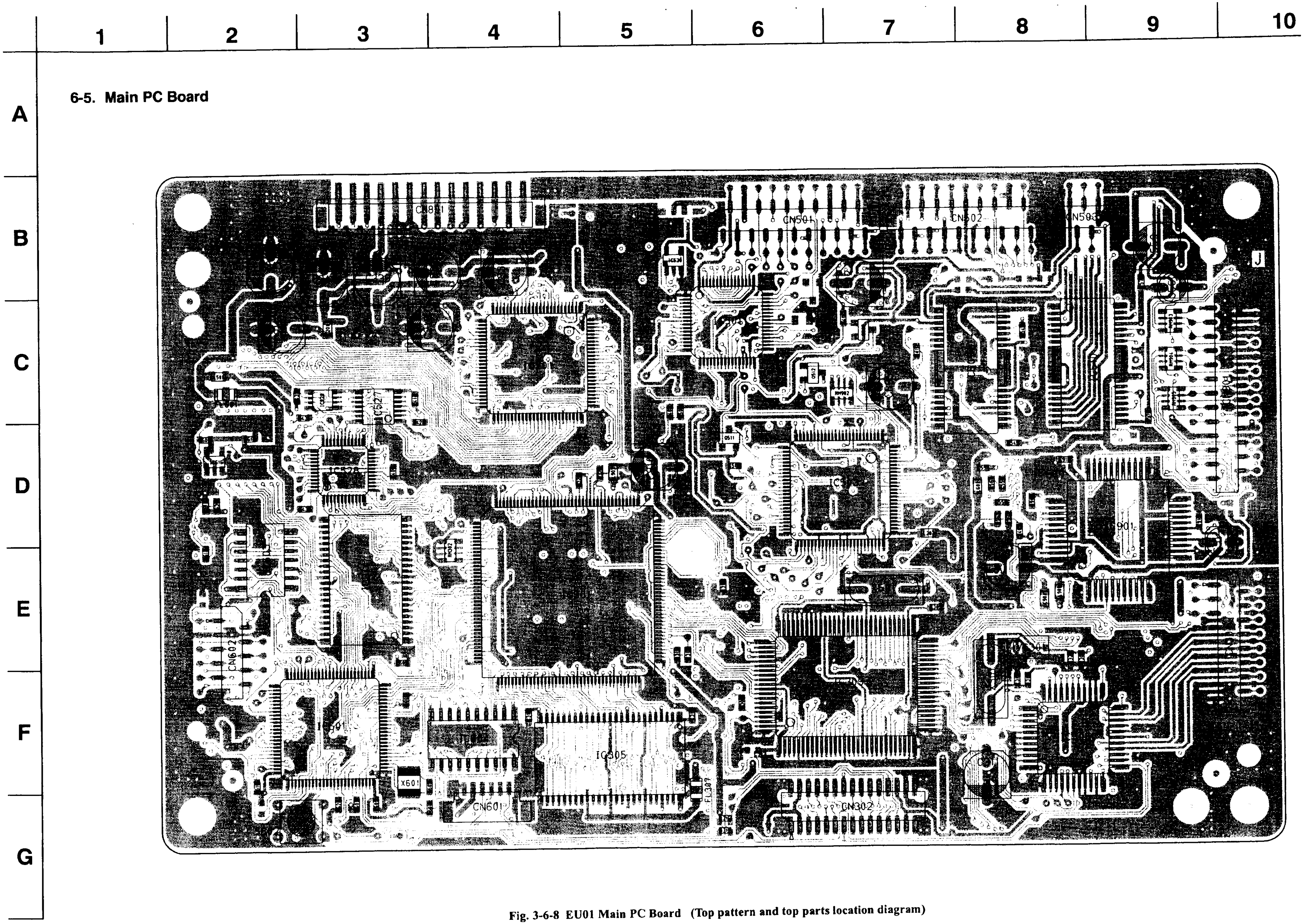

1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
G
CN881
CN501
CN502
CN503
J
IC527
IC528
IC901
CN602
X601
CN601
IC305
FL307
CN302

Fig. 3-6-8 EU01 Main PC Board (Top pattern and top parts location diagram)

6-5. Main PC Board

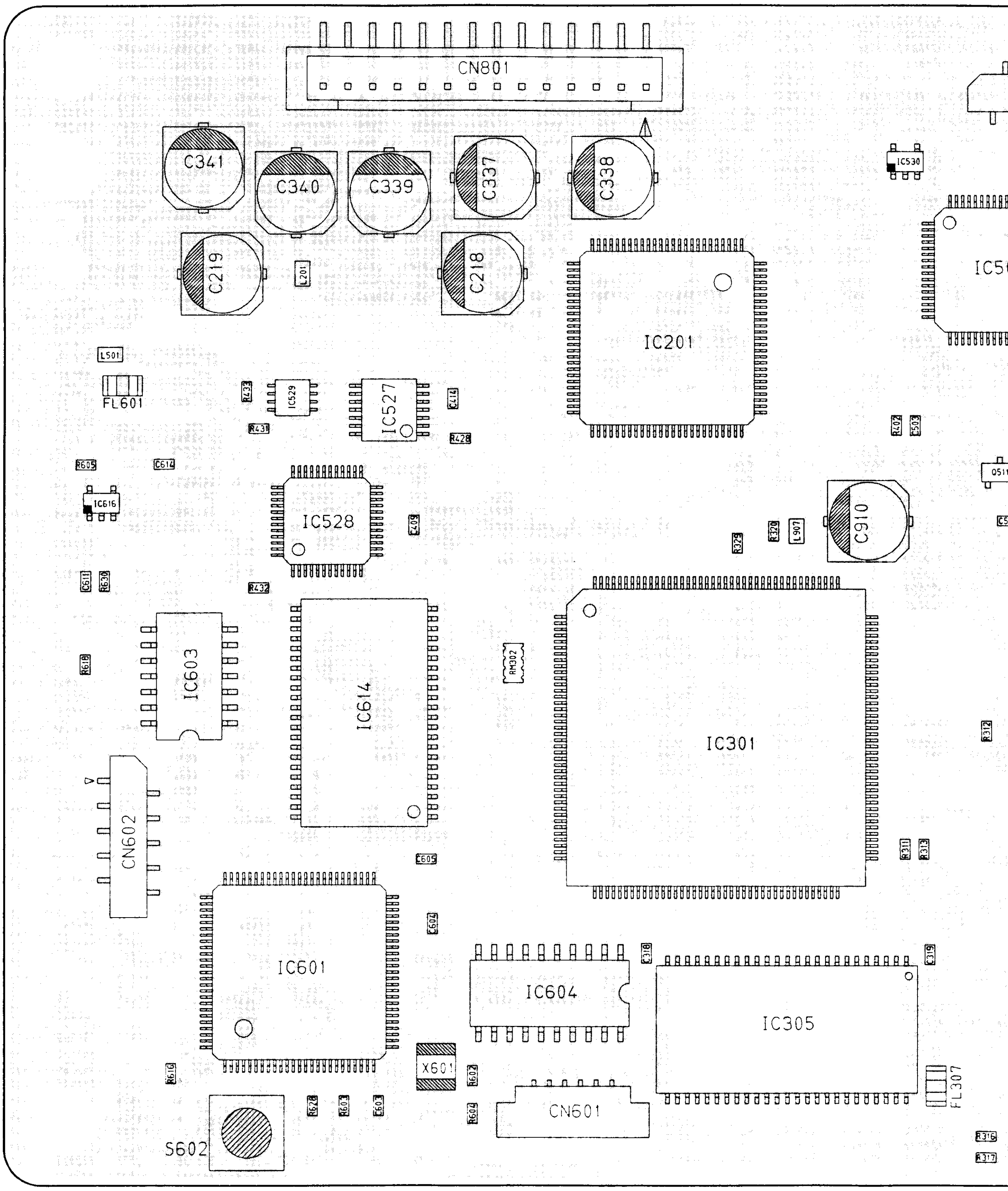
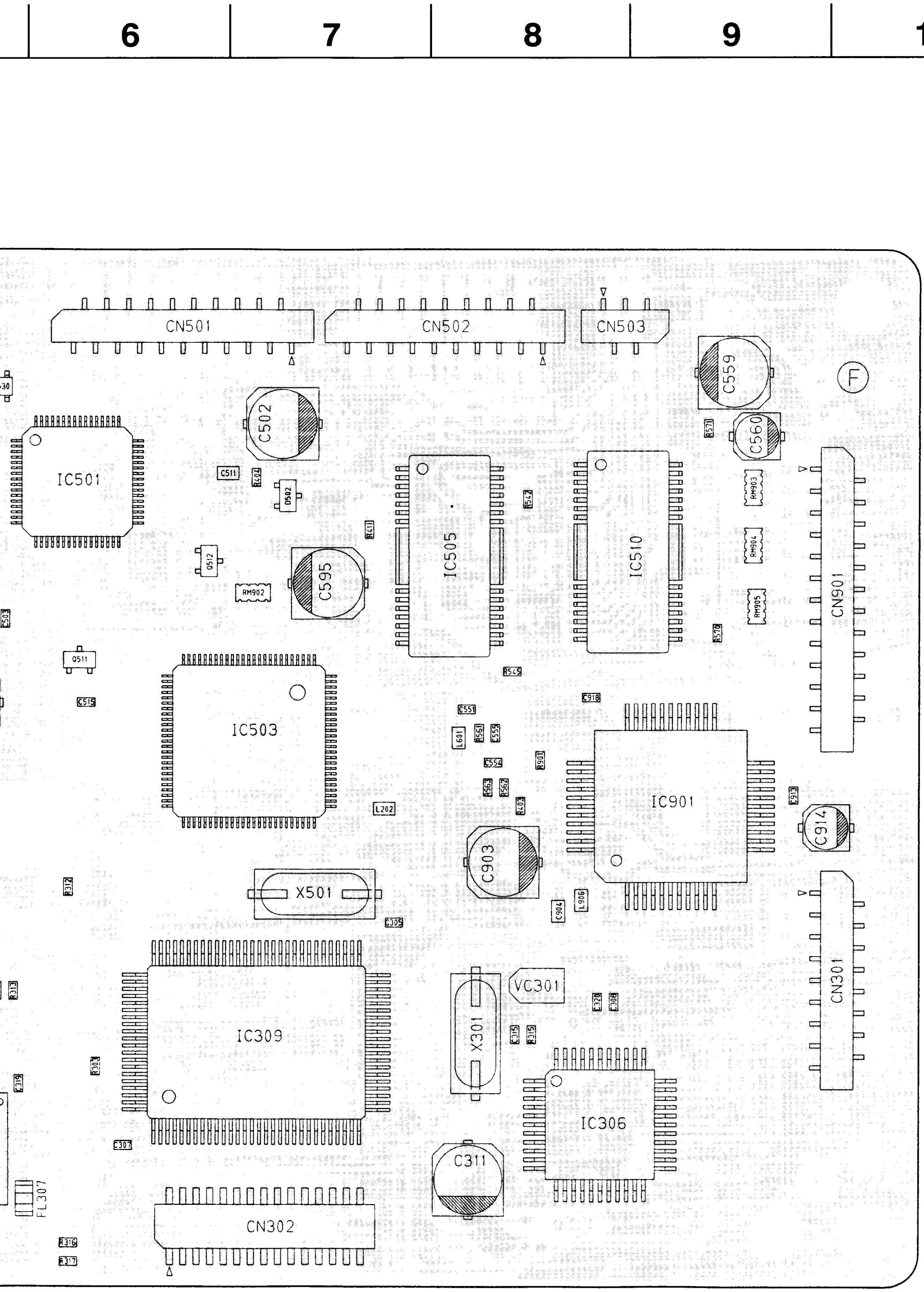

1
2
3
4
5
A
B
C
D
E
F
G
CN801
C341
C340
C339
C337
C338
IC530
C219
L201
C218
IC201
L501
FL601
R433
IC529
IC527
C414
R431
R428
R402
R503
R605
C614
IC616
IC528
C409
R329
R320
L907
C910
C611
R630
R432
RM302
R618
IC603
IC614
IC301
R312
CN602
C605
R311
R313
C604
C318
C319
IC601
IC604
IC305
R616
X601
R602
FL307
R628
R603
C603
R604
CN601
S602
R316
R317

Fig. 3-6-8 EU01 Main PC Board (Top patt


6
7
8
9
10
CN501
CN502
CN503
C559
F
C502
C560
IC501
C511
R404
D502
R571
RM903
IC505
IC510
R542
R411
RM904
Q512
C595
CN901
RM902
RM905
R570
Q511
C515
R545
IC503
C918
C551
L601
R561
R555
C554
R901
R563
R562
R403
IC901
R913
L202
C914
C903
X501
R312
C904
L906
C305
CN301
VC301
R313
X301
C320
C308
IC309
C315
R315
R303
R319
IC306
C307
C311
FL307
CN302
R316
R317

(Top pattern and top parts location diagram)

Part No.	Location
C201	–/C7
C202	–/C7
C203	–/C7
C204	–/C7
C205	–/C7
C206	–/C7
C208	–/C7
C209	–/D7
C210	–/D7
C211	–/D6
C212	–/C6
C213	–/C6
C214	–/C6
C216	–/B7
C217	–/D7
C218	C3/ –
C219	C2/ –
C220	–/E6
C221	–/C7
C225	–/C8
C227	–/B6
C228	–/B6
C239	–/C7
C240	–/C7
C242	–/C7
C243	–/C7
C245	–/C6
C246	–/C6
C247	–/D7
C301	–/F5
C302	–/F5
C303	–/F4
C304	–/E3
C305	E7/ –
C306	–/F5
C307	F6/ –
C308	E8/ –
C309	–/F2
C310	–/F3
C311	F8/ –
C312	–/F3
C313	–/F2
C314	–/F3
C315	F8/ –
C316	–/B8
C317	–/E7
C318	F4/ –
C319	F5/ –
C320	E8/ –
C321	–/E6
C322	–/F2
C323	–/F3
C335	–/F2
C336	–/F2
C337	B4/ –
C338	B4/ –
C339	B3/ –
C340	B3/ –
C341	B2 /
C344	–/F2
C345	–/F2
C346	–/G6
C347	–/E7
C348	–/E7
C349	–/D7
C350	–/D7
C351	–/E6
C352	–/E6
C401	–/C6
C402	–/C5
C403	–/D5
C404	–/D8
C405	–/D8
C406	–/D8
C407	–/D8
C408	–/D8
C409	D3/ –
C410	–/D8
C411	–/D8
C413	–/C8
C414	C3/ –
C415	–/C8
C416	–/C8
C417	–/C8
C420	–/C8
C501	–/B4
C502	B7/ –
C503	C5/ –
C504	–/D6
C505	–/C6
C506	–/C5

The parts l

Part No.	Location
C201	–/C7
C202	–/C7
C203	–/C7
C204	–/C7
C205	–/C7
C206	–/C7
C208	–/C7
C209	–/D7
C210	–/D7
C211	–/D6
C212	–/C6
C213	–/C6
C214	–/C6
C216	–/B7
C217	–/D7
C218	C3/ –
C219	C2/ –
C220	–/E6
C221	–/C7
C225	–/C8
C227	–/B6
C228	–/B6
C239	–/C7
C240	–/C7
C242	–/C7
C243	–/C7
C245	–/C6
C246	–/C6
C247	–/D7
C301	–/F5
C302	–/F5
C303	–/F4
C304	–/E3
C305	E7/ –
C306	–/F5
C307	F6/ –
C308	E8/ –
C309	–/F2
C310	–/F3
C311	F8/ –
C312	–/F3
C313	–/F2
C314	–/F3
C315	F8/ –
C316	–/B8
C317	–/E7
C318	F4/ –
C319	F5/ –
C320	E8/ –
C321	–/E6
C322	–/F2
C323	–/F3
C335	–/F2
C336	–/F2
C337	B4/ –
C338	B4/ –
C339	B3/ –
C340	B3/ –
C341	B2 / –
C344	–/F2
C345	–/F2
C346	–/G6
C347	–/E7
C348	–/E7
C349	–/D7
C350	–/D7
C351	–/E6
C352	–/E6
C401	–/C6
C402	–/C5
C403	–/D5
C404	–/D8
C405	–/D8
C406	–/D8
C407	–/D8
C408	–/D8
C409	D3/ –
C410	–/D8
C411	–/D8
C413	–/C8
C414	C3/ –
C415	–/C8
C416	–/C8
C417	–/C8
C420	–/C8
C501	–/B4
C502	B7/ –
C503	C5/ –
C504	–/D6
C505	–/C6
C506	–/C5
C507	–/C5
C508	–/D4
C509	–/C5
C510	–/C4
C511	C6/ –
C512	–/C5
C513	–/C5
C514	–/C5
C515	D6/ –
C516	–/C5
C519	–/C5
C520	–/C5
C521	–/D5
C522	–/C4
C523	–/C5
C524	–/C6
C526	–/C5
C527	–/C5
C528	–/C5
C529	–/E4
C532	–/C3
C533	–/B3
C534	–/C3
C535	–/C2
C538	–/C3
C539	–/C3
C540	–/B5
C541	–/B5
C542	–/B2
C543	–/B2
C544	–/C2
C545	–/C3
C546	–/C3
C548	–/C3
C549	–/B4
C550	–/C4
C551	D8/ –
C552	–/D3
C553	–/D3
C554	D8/ –
C555	D8/ –
C556	–/B2
C557	–/B2
C558	–/B2
C559	B9/ –
C560	B9/ –
C561	–/D2
C562	–/C2
C563	–/C2
C564	–/E4
C565	–/E4
C572	–/D4
C573	–/D4
C574	–/D4
C575	–/D4
C576	–/D4
C577	–/D5
C578	–/D4
C579	–/D4
C580	–/D4
C582	–/D5
C583	–/D4
C584	–/E5
C585	–/E5
C588	–/D4
C589	–/C5
C591	–/D4
C592	–/D4
C594	–/D4
C595	C7/ –
C597	–/D4
C598	–/D4
C599	–/D5
C601	–/G9
C602	–/E8
C603	G3/ –
C604	F3/ –
C605	E3/ –
C606	–/F9
C607	–/F9
C610	–/D9
C611	D2/ –
C614	D2/ –
C615	–/F9
C616	–/E9
C617	–/F9
C618	–/F9
C619	–/F9
C621	–/E9
C622	–/B8
C623	–/B8
C624	–/B8
C901	–/E3
C902	–/E2
C903	E8/ –
C904	E8/ –
C905	–/E2
C907	–/D6
C908	–/D6
C909	–/E6
C910	D5/ –
C911	–/E2
C912	–/E2
C913	D9/ –
C914	E9/ –
C915	–/D2
C916	–/D2
C917	–/E2
C918	D8/ –
CN301	E10/ –
CN302	G7 / –
CN501	B6 / –
CN502	B7/ –
CN503	B8/ –
CN601	G4/ –
CN602	E2/ –
CN603	–/D6
CN801	B3/ –
CN901	C10/ –
D501	–/B4
D502	C7/ –
D503	–/B4
D504	–/C5
D505	–/B5
FL301	–/B7
FL302	–/B7
FL303	–/B7
FL304	–/B7
FL305	–/B7
FL306	–/F5
FL307	G5/ –
FL308	–/F3
FL309	–/F3
FL501	–/D3
FL502	–/D2
FL601	C2/ –
IC201	C4/ –
IC202	–/C8
IC203	–/C7
IC204	–/E7
IC205	–/E6
IC301	E5/ –
IC302	–/F6
IC305	F5/ –
IC306	F8/ –
IC307	–/F2
IC308	–/F3
IC310	–/F4
IC311	–/E6
IC312	–/E6
IC313	–/E6
IC314	–/E6
IC501	C6/ –
IC503	D7/ –
IC504	–/B6
IC505	C8/ –
IC506	–/C2
IC507	–/C3
IC508	–/C4
IC509	–/D3
IC510	C9/ –
IC512	–/D4
IC516	–/B6
IC517	–/D5
IC518	–/C5
IC519	–/D5
IC520	–/D4
IC521	–/D6
IC522	–/E4
IC523	–/E3
IC524	–/E4
IC525	–/D8
IC526	–/D8
IC527	C3/ –
IC528	D3/ –
IC529	C3/ –
IC530	B5/ –
IC601	F3/ –
IC602	–/G7
IC603	E2/ –
IC604	F4/ –
IC605	–/E8
IC607	–/E9
IC608	–/E9
IC609	–/D9
IC613	–/D9
IC614	E3/ –
IC615	–/F8
IC616	D2/ –
IC901	D9/ –
IC902	–/D6
IC903	–/D2
IC904	–/E7
IC906	–/D3
IC907	–/F5
IC908	–/D3
L201	C3/ –
L202	D7/ –
L204	–/B7
L302	–/F2
L303	–/E6
L307	–/E1
L501	C2/ –
L502	–/C2
L601	D8/ –
L610	–/E9
L904	–/D1
L905	–/C1
L906	E8/ –
L907	D5/ –
L909	–/C1
L910	–/E1
L911	–/D1
Q501	–/C4
Q502	–/C4
Q503	–/D2
Q504	–/D5
Q505	–/D5
Q506	–/D2
Q507	–/B5
Q508	–/B6
Q510	–/C4
Q511	D6/ –
Q512	C6/ –
Q601	–/F9
R201	–/C7
R208	–/C6
R210	–/C7
R212	–/C7
R213	–/C7
R214	–/C7
R215	–/C7
R216	–/C7
R217	–/C7
R218	–/C7
R220	–/C6
R221	–/C6
R223	–/C7
R224	–/C7
R225	–/C7
R226	–/B6
R227	–/B6
R228	–/C7
R229	–/C7
R230	–/E6
R301	–/F2
R302	–/F2
R303	F6/ –
R305	–/F2
R306	–/F2
R307	–/F2
R308	–/F8
R309	–/E2
R310	–/E2
R311	E5/ –
R312	E6/ –
R313	E5/ –
R315	F8/ –
R316	G6/ –
R317	G6/ –
R319	–/F2
R320	D5/ –
R321	–/E7
R323	–/F3
R324	–/F3
R325	–/E6
R326	–/D1
R327	–/D1
R328	–/D1
R329	D5/ –
R401	–/C4
R402	C5/ –
R403	D8/ –
R404	C7/ –
R405	–/D5
R408	–/D4
R409	–/D4
R410	–/B6
R411	C7/ –
R415	–/F9
R417	–/D8
R418	–/D8
R419	–/D8
R420	–/D8
R421	–/D8
R422	–/D8
R423	–/D8
R424	–/D8
R425	–/D8
R426	–/D8
R427	–/C8
R428	C3/ –
R429	–/C8
R430	–/C8
R431	C2/ –
R432	D2/ –
R433	C2/ –
R434	–/C7
R435	–/D8
R437	–/C7
R438	–/C7
R440	–/D8
R501	–/B5
R502	–/B6
R503	–/C4
R504	–/C4
R505	–/B5
R506	–/B6
R507	–/D4
R508	–/B6
R509	–/C4
R510	–/C5
R512	–/C5
R513	–/C4
R514	–/C4
R515	–/C4
R516	–/C4
R517	–/B5
R518	–/B5
R519	–/C5
R520	–/C6
R521	–/C5
R522	–/E4
R523	–/C4
R524	–/C6
R525	–/C4
R526	–/C3
R527	–/C2
R528	–/C2
R529	–/B3
R530	–/C3
R531	–/C3
R532	–/B3
R533	–/C2
R534	–/C6
R535	–/B4
R536	–/C3
R537	–/D2
R538	–/D2
R539	–/C3
R540	–/C2
R541	–/C2
R542	C8/ –
R543	–/C3
R544	–/C3
R545	D8/ –
R546	–/C4
R547	–/C4
R548	–/C4
R549	–/C4
R550	–/D2
R551	–/D2
R552	–/B4
R553	–/B4
R554	–/B4
R555	–/B4
R556	–/D3
R557	–/D3
R559	–/C4
R560	–/D3
R561	D8/ –
R562	D8/ –
R563	D8/ –
R564	–/B6
R565	–/B2
R566	–/B2
R567	–/C2
R568	–/C2
R569	–/B4
R570	D9/ –
R571	B9/ –
R572	–/D5
R573	–/D6
R574	–/C5
R575	–/D5
R576	–/D4
R577	–/D5
R578	–/D5
R579	–/D5
R580	–/D5
R581	–/D4
R582	–/D4
R583	–/D4
R584	–/D4
R585	–/D4
R586	–/D5
R587	–/D5
R588	–/D4
R589	–/D5
R590	–/E4
R591	–/E4
R592	–/E4
R593	–/D6
R594	–/D5
R595	–/E3
R597	–/C4
R598	–/C6
R599	–/C6
R601	–/E8
R602	F3/ –
R603	G3/ –
R604	G3/ –
R605	D2/ –
R606	–/G7
R607	–/E8
R608	–/F9
R609	–/F9
R610	–/F9
R611	–/F9
R613	–/F9
R616	F2/ –
R617	–/F8
R618	E2/ –
R619	–/F9
R625	–/E9
R628	G3/ –
R629	–/G9
R630	D2/ –
R640	–/F9
R642	–/E9
R643	–/E9
R644	–/E9
R645	–/E9
R901	D8/ –
R902	–/D6
R903	–/E2
R904	–/E2
R905	–/E7
R906	–/E2
R907	–/D2
R908	–/E6
R909	–/E6
R910	–/D6
R911	–/D2
R912	–/D2
R913	–/D2
RM302	E4/ –
RM303	–/E2
RM304	–/F5
RM305	–/E1
RM501	–/D4
RM601	–/G8
RM602	–/G8
RM603	–/F7
RM604	–/G7
RM902	C7/ –
RM903	C9/ –
RM904	C9/ –
RM905	C9/ –
S602	G2/ –
VC301	E8/ –
X301	F8/ –
X501	E7/ –
X601	F3/ –

The parts location list shows ex. A1/B1= top side/bottom side.

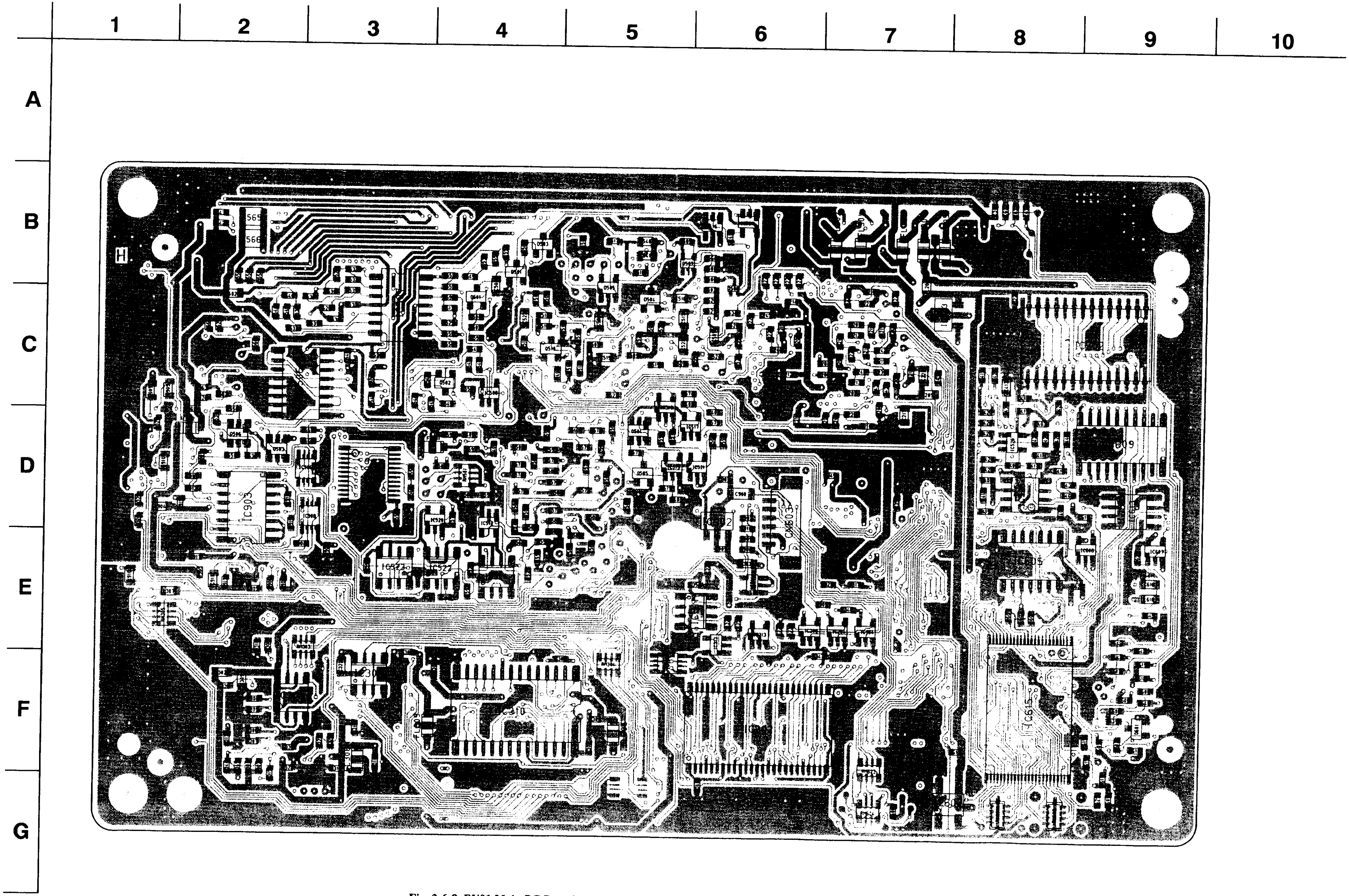

1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
G
565
566
IC903
IC522
IC527
CN603
IC605
IC615

Fig. 3-6-9 EU01 Main PC Board (Bottom pattern and bottom parts location diagram)

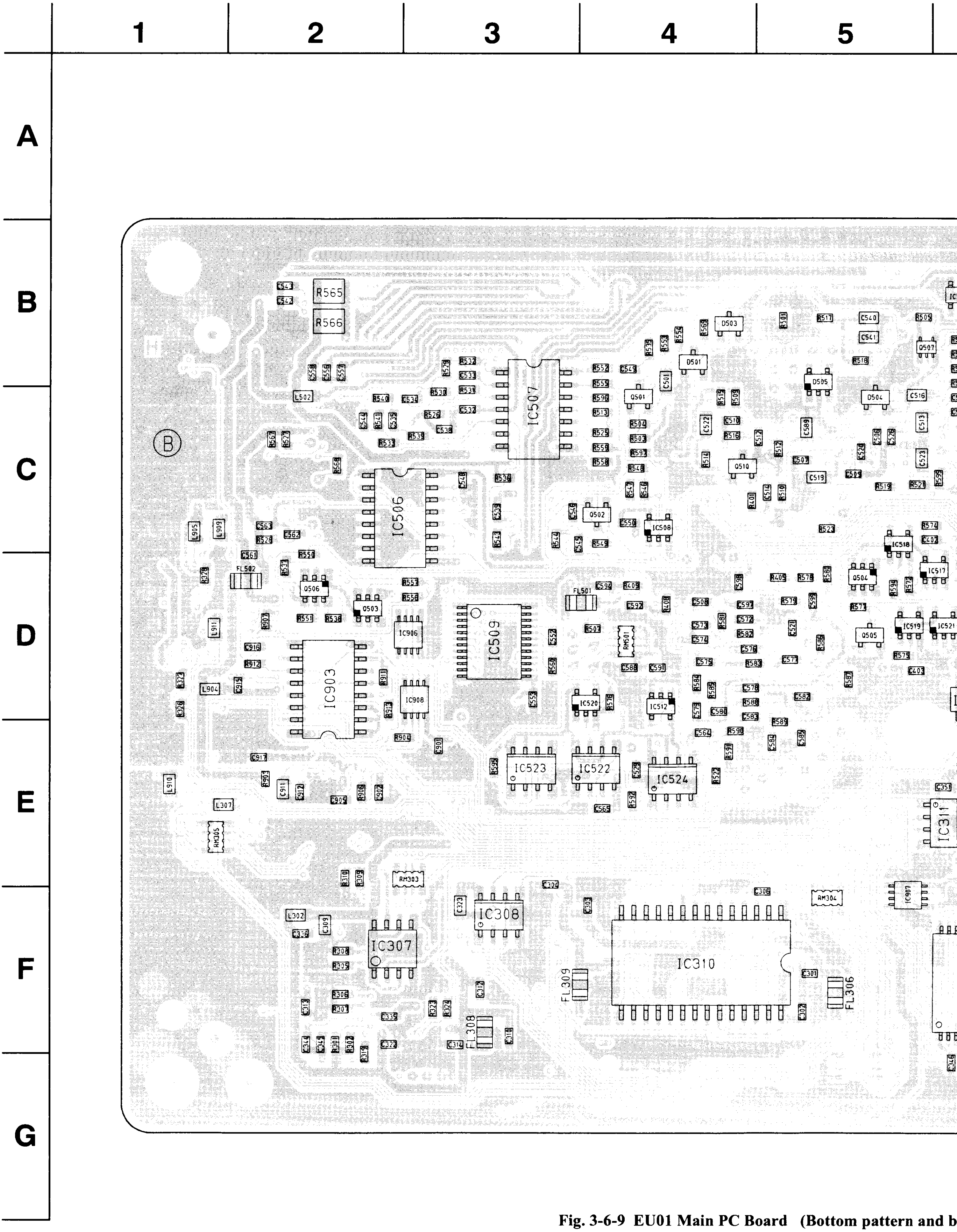
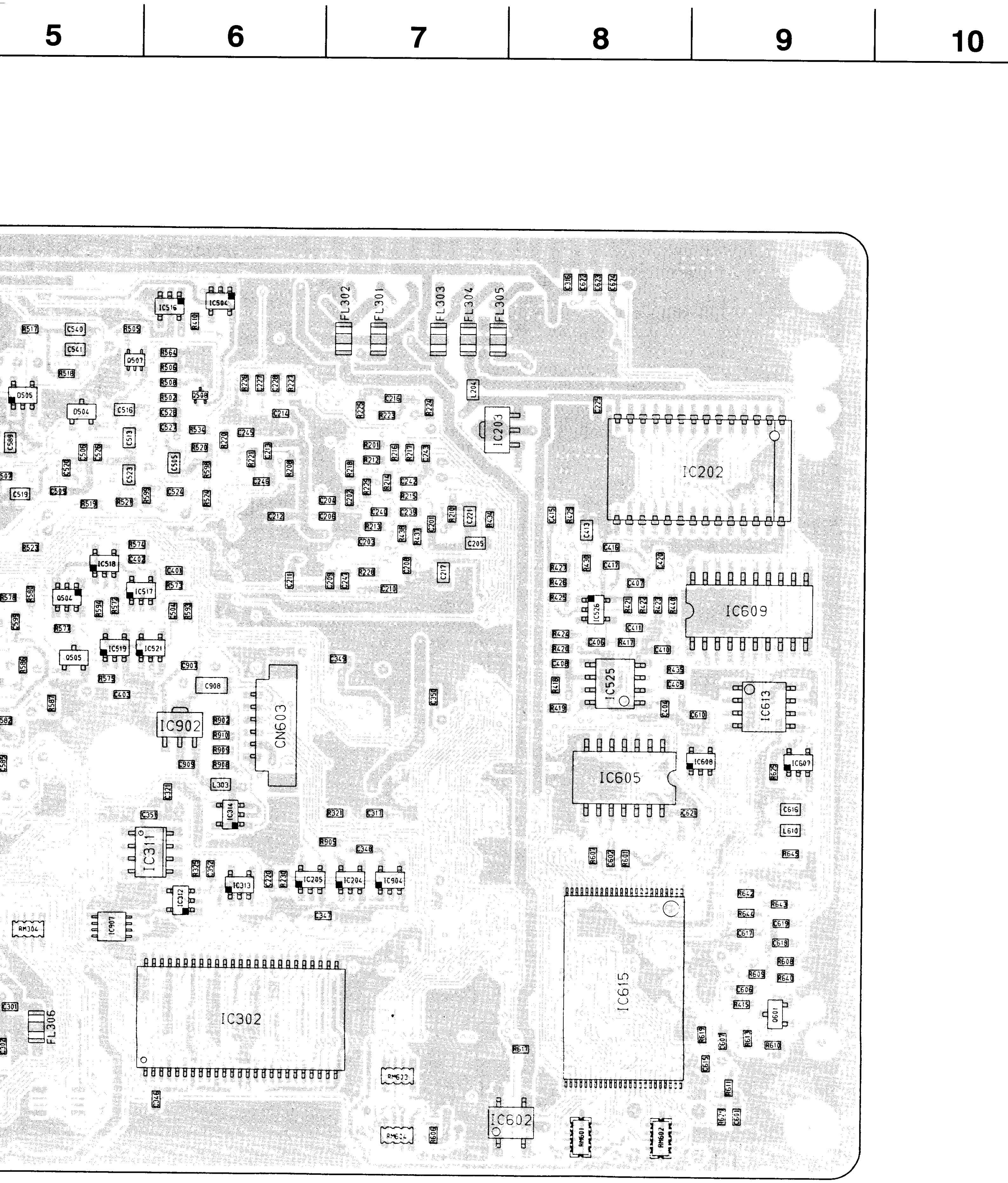

1
2
3
4
5
A
B
C
D
E
F
G
B
R565
R566
L502
IC507
IC506
IC509
IC903
IC906
IC908
IC508
IC518
IC517
IC519
IC521
IC520
IC512
IC523
IC522
IC524
IC311
IC307
IC308
IC310
IC907
Q501
Q502
Q503
Q504
Q505
Q506
Q507
Q510
D501
D503
D504
D505
FL501
FL502
FL306
FL308
FL309
RM301
RM303
RM304
RM305
L302
L307
L904
L905
L909
L910
L911

Fig. 3-6-9 EU01 Main PC Board (Bottom pattern and b


5
6
7
8
9
10
IC516
IC504
FL302
FL301
FL303
FL304
FL305
C316
C622
C623
C624
R517
C540
R505
C541
Q507
R564
R506
R518
R508
R502
Q508
Q505
D504
C516
C528
C527
R534
R520
C249
R226
R227
C228
R222
C216
R223
R224
L204
IC203
C229
IC202
C589
C513
C505
C523
C524
C519
C509
R519
R521
R210
C221
R434
C205
C415
R426
C413
C416
C417
R427
R428
R425
IC526
C407
IC609
C411
R424
R420
C406
R417
C410
C408
IC525
C405
C204
R418
R419
C610
IC613
IC518
C402
C401
R573
Q504
IC517
R577
IC519
IC521
Q505
C907
C908
C403
IC902
R902
R910
R909
R908
C909
CN603
C349
L303
C321
IC314
C351
IC311
R321
C317
R905
C348
IC313
IC312
IC205
IC204
IC904
IC605
IC608
IC607
C616
L610
C621
R601
R602
R600
IC615
R642
R643
R644
C619
C617
C618
R608
R609
R640
C606
R615
Q601
R613
R610
R619
C615
R611
R617
IC907
RM304
C301
FL306
IC302
RM603
RM604
R606
IC602
RM601
RM602
C346
C347

(Bottom pattern and bottom parts location diagram)

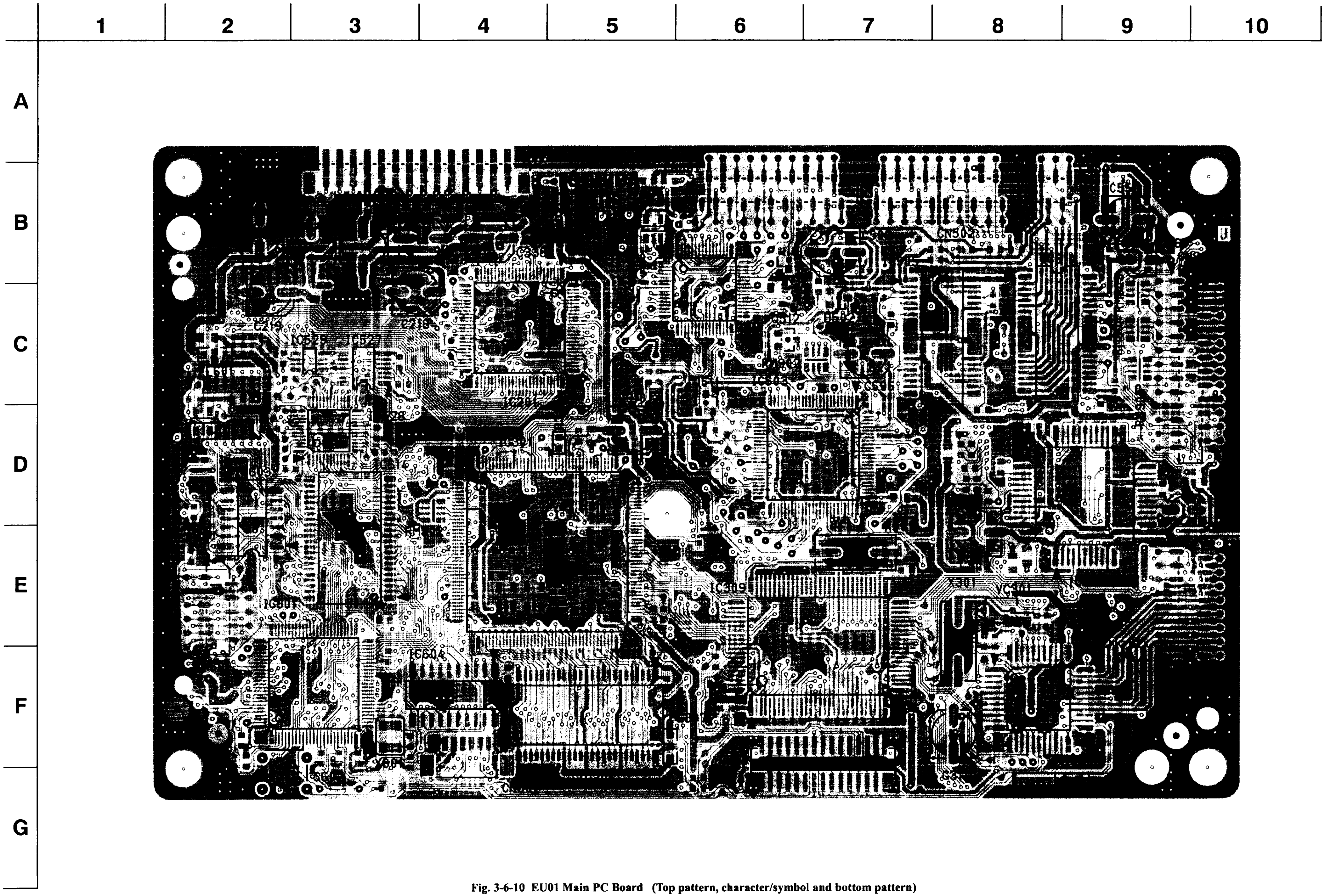

1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
G
CN502
C219
C218
IC529
IC527
IC601
IC604
IC309
X301
VC401

Fig. 3-6-10 EU01 Main PC Board (Top pattern, character/symbol and bottom pattern)

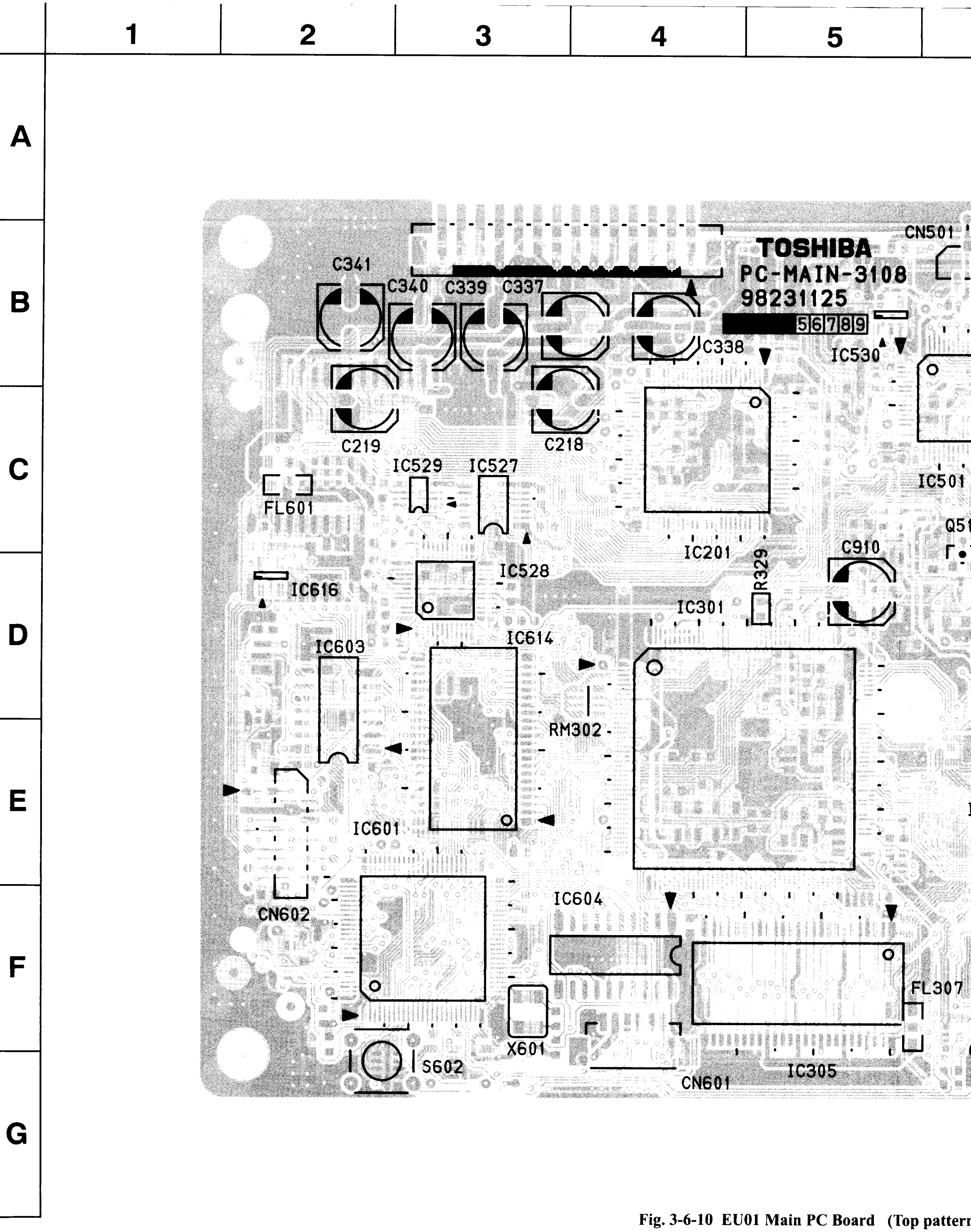
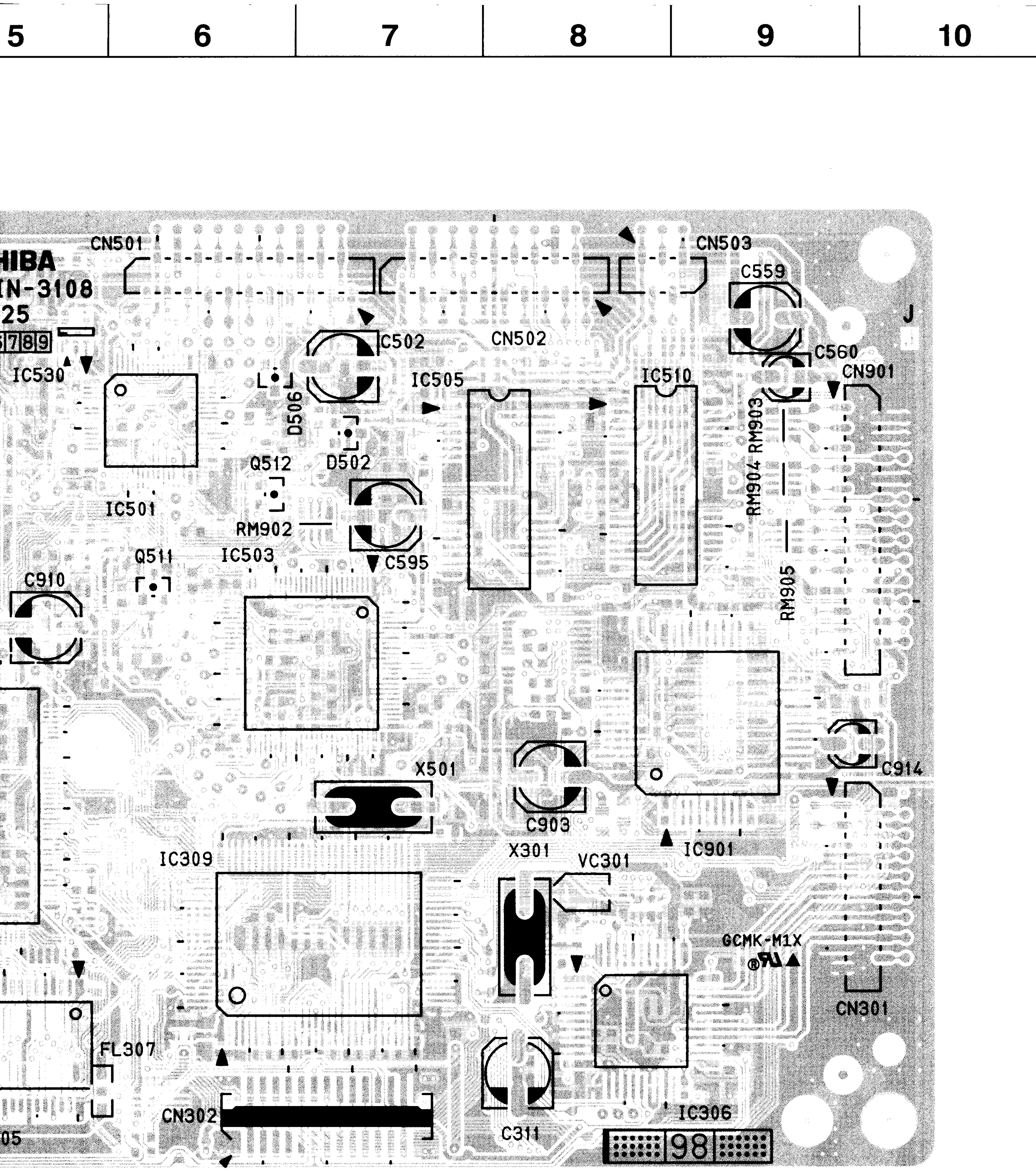

1
2
3
4
5
A
B
C
D
E
F
G
TOSHIBA
PC-MAIN-3108
98231125
56789
CN501
C341
C340
C339
C337
C338
IC530
C219
C218
IC529
IC527
FL601
IC501
Q51
IC201
C910
IC616
IC528
R329
IC301
IC603
IC614
RM302
IC601
CN602
IC604
FL307
X601
S602
CN601
IC305

Fig. 3-6-10 EU01 Main PC Board (Top pattern


5
6
7
8
9
10
CN501
HIBA
IN-3108
25
789
CN503
C559
J
C502
CN502
C560
CN901
IC530
IC505
IC510
L
D506
RM903
RM904
D502
Q512
IC501
RM902
Q511
IC503
C595
C910
RM905
X501
C914
C903
IC309
X301
VC301
IC901
GCMK-M1X
CN301
FL307
CN302
IC306
C311
98
05

C Board (Top pattern, character/symbol and bottom pattern)

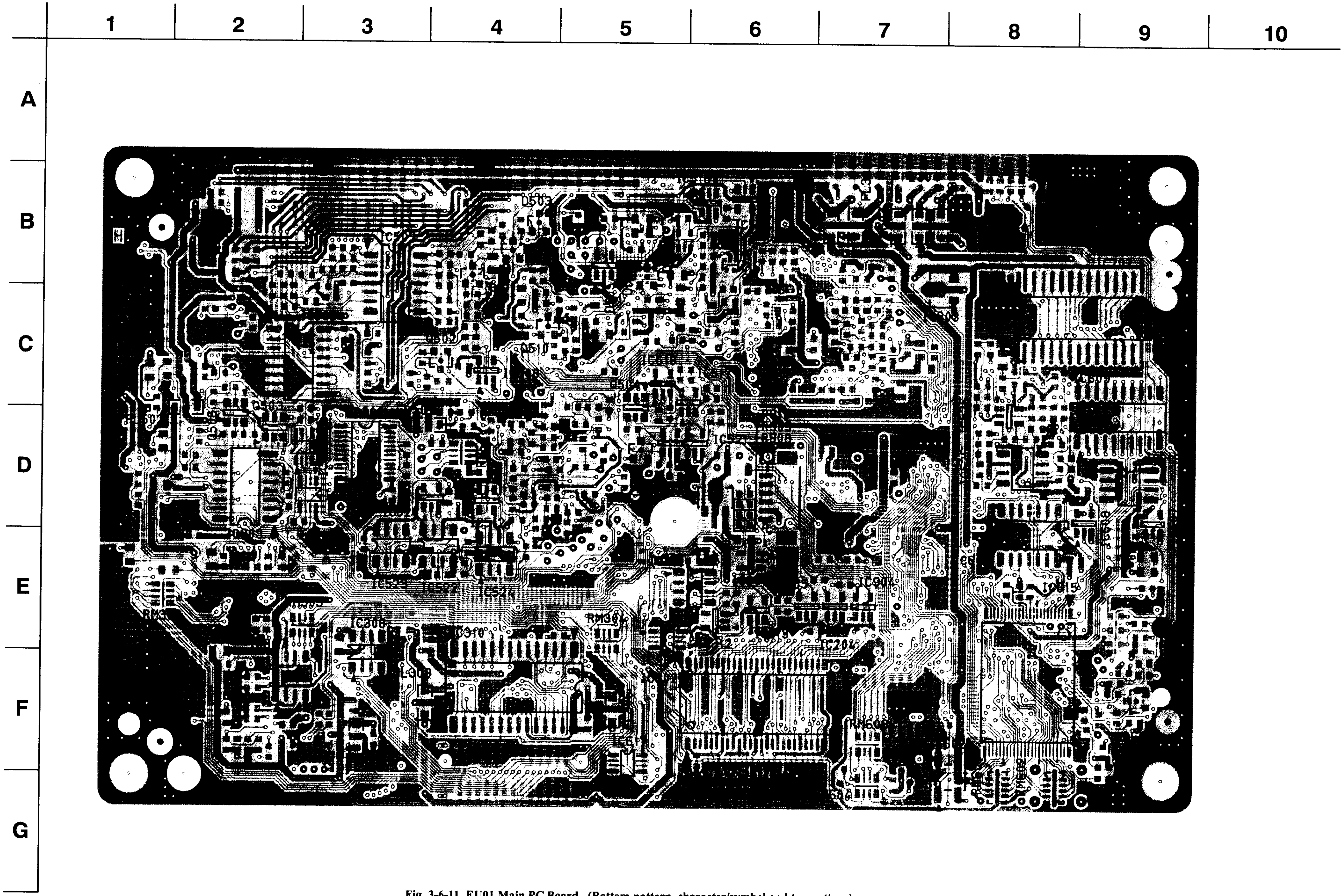

1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
G
D503
IC523
IC522
IC521
IC308
IC310
RN308
IC202
IC904
RN606

Fig. 3-6-11 EU01 Main PC Board (Bottom pattern, character/symbol and top pattern)

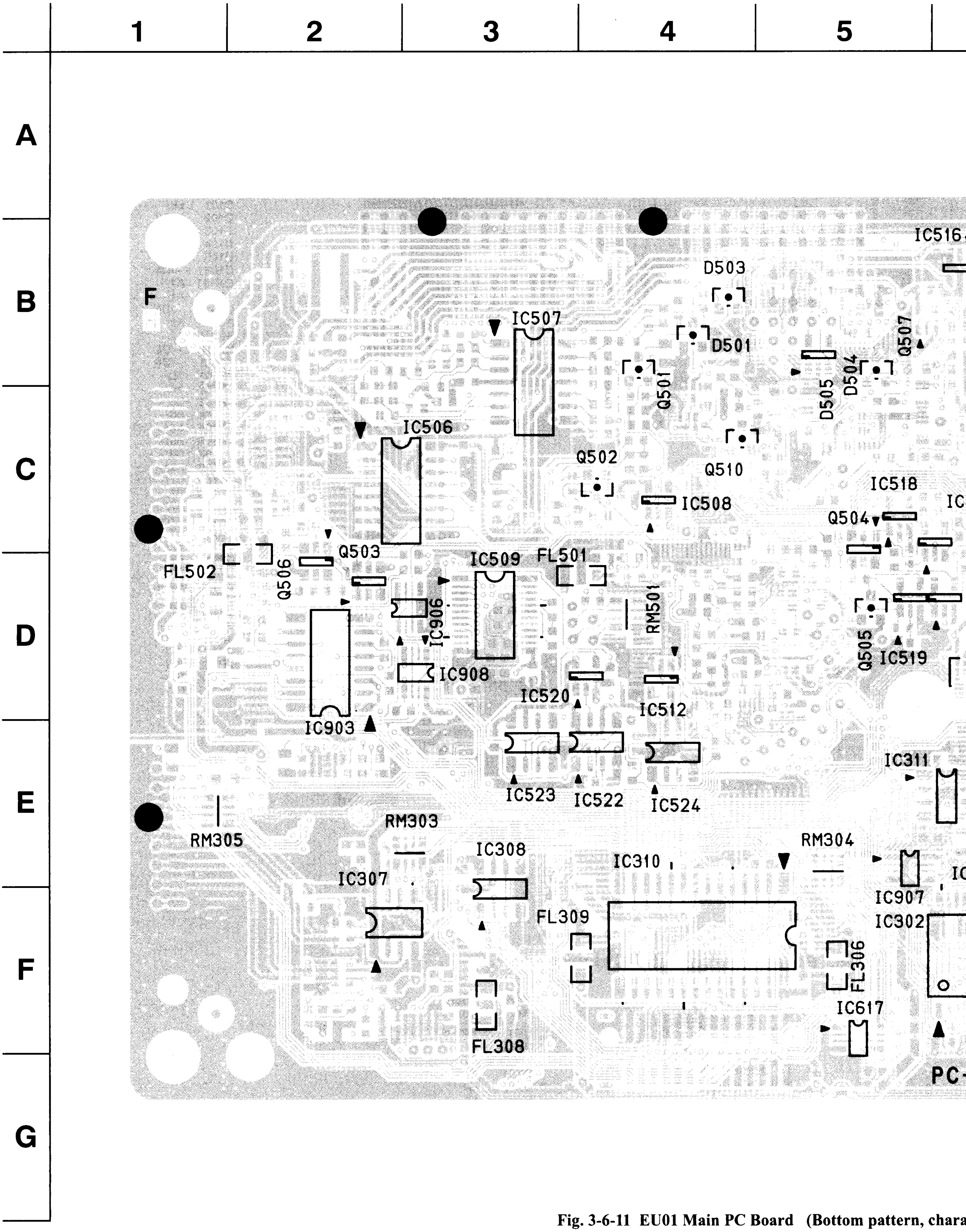
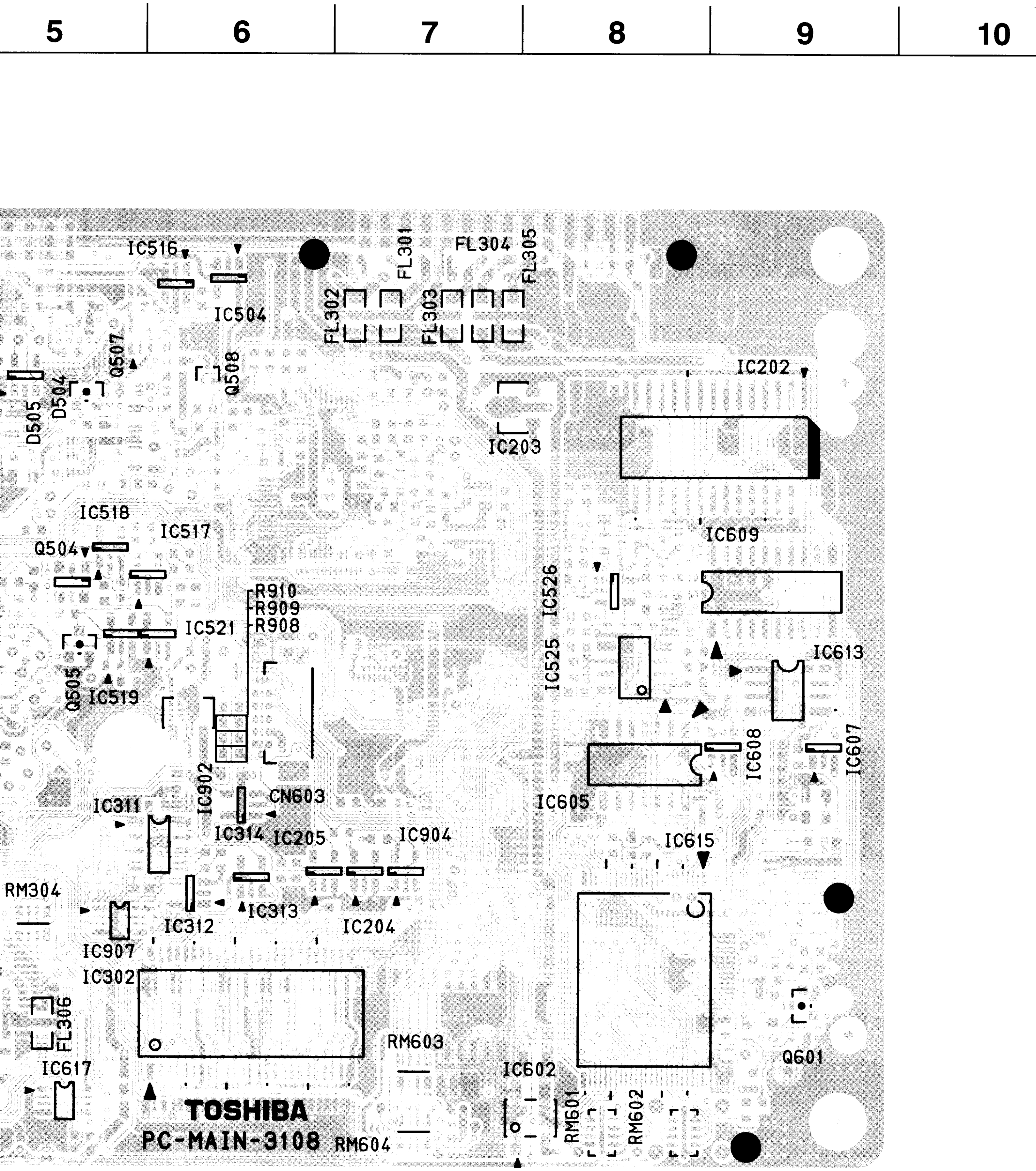

1
2
3
4
5
A
B
C
D
E
F
G
IC516
D503
F
IC507
D501
Q507
Q501
D504
D505
IC506
Q502
Q510
IC518
IC508
Q504
FL502
Q506
Q503
IC509
FL501
IC906
RM501
Q505
IC519
IC908
IC903
IC520
IC512
IC311
IC523
IC522
IC524
RM305
RM303
IC308
IC310
RM304
IC307
IC907
IC302
FL309
FL306
IC617
FL308
PC

Fig. 3-6-11 EU01 Main PC Board (Bottom pattern, chara


5
6
7
8
9
10
IC516
FL301
FL304
FL305
FL302
FL303
IC504
Q507
Q508
D504
D505
IC202
IC203
IC518
IC517
Q504
IC609
IC526
R910
R909
R908
IC521
IC525
IC613
Q505
IC519
IC608
IC607
IC902
CN603
IC605
IC311
IC314
IC205
IC904
IC615
RM304
IC313
IC312
IC204
IC907
IC302
FL306
RM603
IC617
IC602
Q601
RM601
RM602
TOSHIBA
PC-MAIN-3108
RM604

(Bottom pattern, character/symbol and top pattern)

6-6. Front Display PC Board

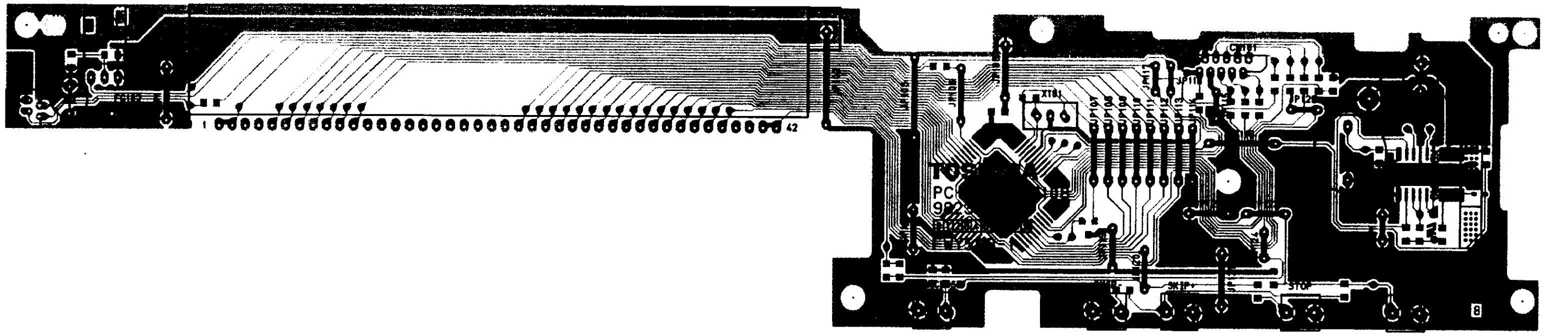


Fig. 3-6-12 EU03 Front Display PC Board (Top Side)

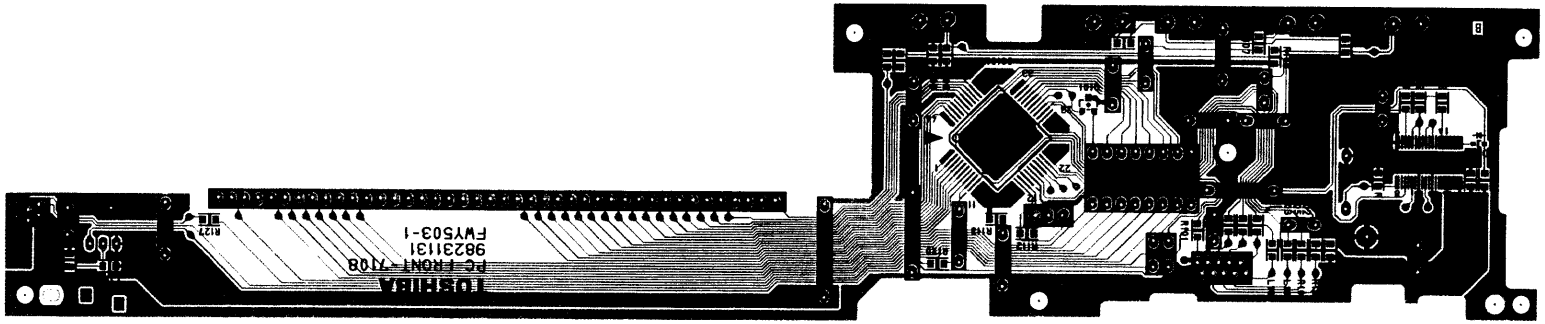


Fig. 3-6-13 EU03 Front Display PC Board (Bottom Side)

Part No.	Location
A101	B2/–
C101	B8/–
C102	–/D8
C103	–/D8
C104	A1/–
C105	–/E2
C106	–/D6
CN101	A7/–
CN102	A1/–
D101	–/D8
FG101	A8/–
FG102	B2/–
IC101	–/D6
IC102	–/D8
JP101	B2/–
JP102	A5/–
JP103	B6/–
JP104	B6/–
JP105	A6/–
JP106	B6/–
JP107	B6/–
JP108	B7/–
JP109	B7/–
JP110	B7/–
JP111	B7/–
JP112	B7/–
JP113	B7/–
JP114	B7/–
JP115	B7/–
JP116	B7/–
JP117	A7/–
JP118	A7/–
JP119	B7/–
JP120	B7/–
JP121	B7/–
JP122	B7/–
JP123	B7/–
JP124	B7/–
JP125	B7/–
JP126	B8/–
L101	–/E7
L102	–/D7
L103	–/E7
L104	–/E1
MT101	A1/–
Q101	–/D6
R101	–/E7
R102	–/E8
R103	–/D7
R104	–/E7
R105	–/D7
R106	–/D6
R107	–/D7
R108	–/D7
R109	–/D8
R110	–/D6
R112	–/E6
R113	–/E6
R114	–/D5
R115	–/D5
R116	–/D8
R117	–/D8
R118	–/D8
R119	–/D8
R120	–/E6
R123	–/E8
R127	–/E2
S101	C6/–
S102	C7/–
S103	C8/–
S104	C7/–
S105	C6/–
SP101	B8/–
X101	B6/–

6-7. Power Switch PC Board

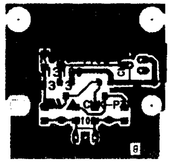


Fig. 3-6-14 EU04
Power Switch
PC Board (Top Side)

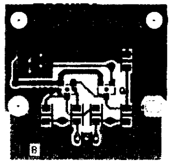


Fig. 3-6-15 EU04
Power Switch
PC Board (Bottom Side)

Part No.	Location
CN103	F2/–
D102	G2/–
Q102	–/G3
Q103	–/G3
R121	–/F3
R122	–/G3
R124	–/G3
R125	–/G3
R126	–/G3

6-8. Power Switch Sub PC Board

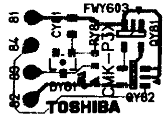


Fig. 3-6-16 EU51
Power Switch Sub PC Board

Part No.	Location
CY81	F6
DY81	G6
FWY603	F7
QY81	F7
QY82	G7
RY81	F6

The parts location list shows
ex. A1/B1= top side/bottom side.

6-6. Front Display PC Board

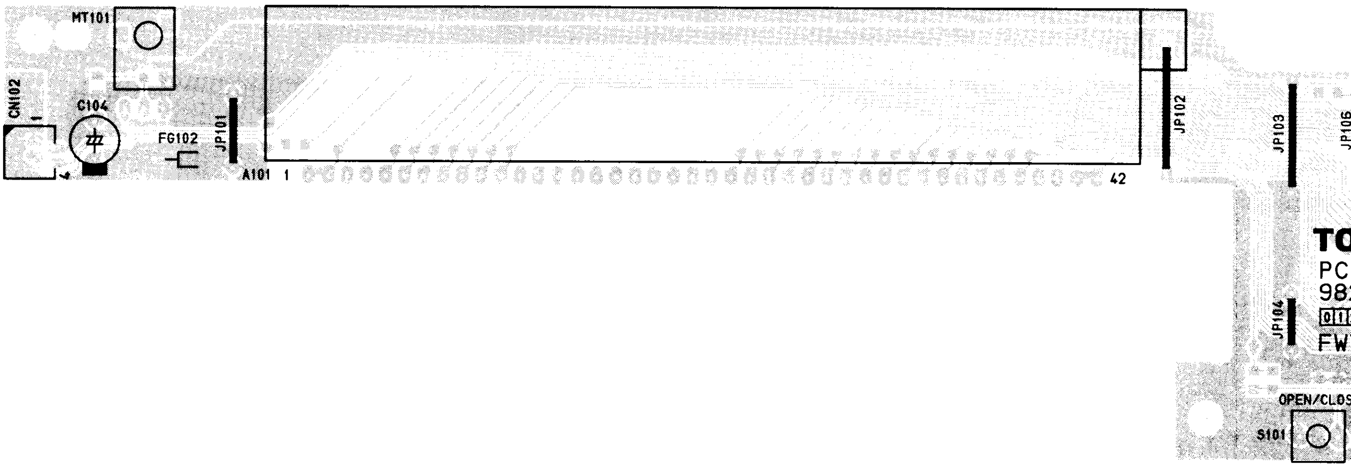

MT101
CN102
C104
FG102
JP101
A101
1
42
JP102
JP103
JP105
TO
PC
98
JP104
FW
OPEN/CLOS
S101

Fig. 3-6-12 EU03 Front Display PC Board (Top Si

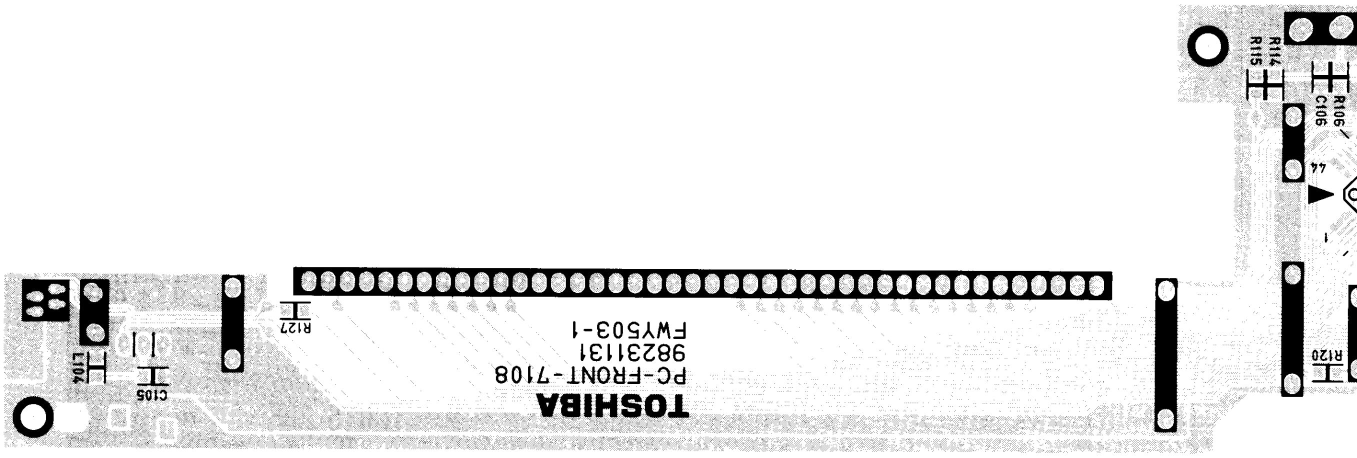

R115
R114
C106
R106
R127
FWY503-1
98231131
PC-FRONT-7108
TOSHIBA
L104
C105
R120

Fig. 3-6-13 EU03 Front Display PC Board (Bottom

6-7. Power Switch PC Board

6-8

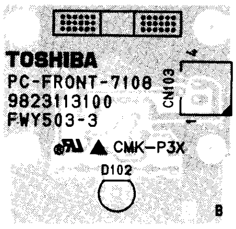

TOSHIBA
PC-FRONT-7108
9823113100
FWY503-3
CN103
4
1
CMK-P3X
D102
B

Fig. 3-6-14 EU04
Power Switch
PC Board (Top Side)

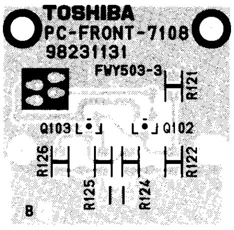
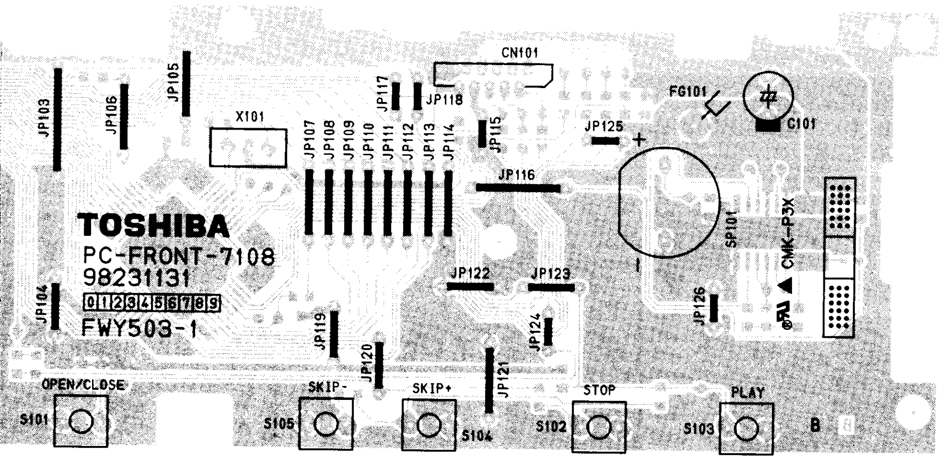
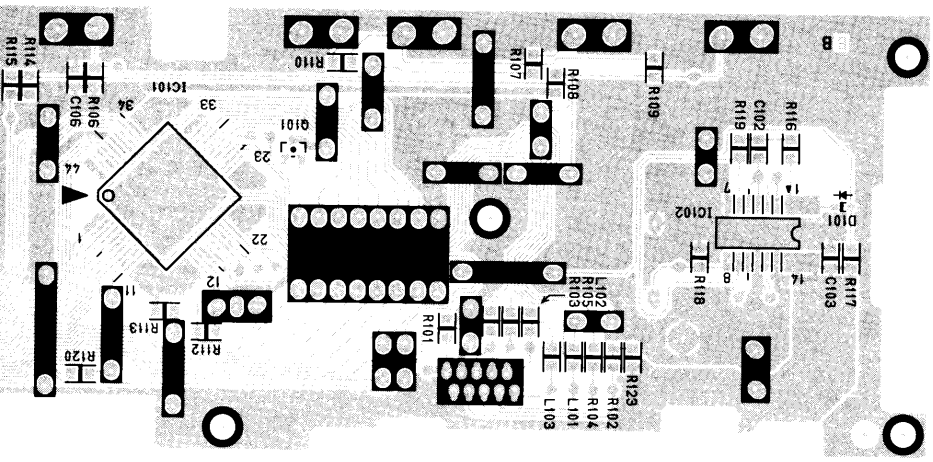

TOSHIBA
PC-FRONT-7108
98231131
FWY503-3
R121
Q103
Q102
R126
R125
R124
R122
B

Fig. 3-6-15 EU04
Power Switch
PC Board (Bottom Side)

Part No.	Location
CN103	F2/–
D102	G2/–
Q102	–/G3
Q103	–/G3
R121	–/F3
R122	–/G3
R124	–/G3
R125	–/G3
R126	–/G3


CN101
JP103
JP106
JP105
X101
JP107
JP108
JP109
JP110
JP111
JP112
JP113
JP114
JP117
JP118
JP115
JP125
FG101
C101
JP116
TOSHIBA
PC-FRONT-7108
98231131
0123456789
FWY503-1
JP104
JP119
JP120
JP121
JP122
JP123
JP124
JP126
SP101
CMK-P3X
OPEN/CLOSE
S101
SKIP-
S105
SKIP+
S104
STOP
S102
PLAY
S103
B

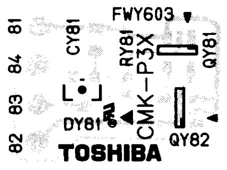
rd (Top Side)


R114
R115
C106
R106
IC101
34
33
44
23
22
1
11
12
R110
R107
R108
R109
R119
C102
R116
IC102
D101
R118
C103
R117
R113
R112
R120
R101
L102
R105
R103
R123
R102
R104
L101
L103
B

(Bottom Side)

Part No.	Location
A101	B2/–
C101	B8/–
C102	–/D8
C103	–/D8
C104	A1/–
C105	–/E2
C106	–/D6
CN101	A7/–
CN102	A1/–
D101	–/D8
FG101	A8/–
FG102	B2/–
IC101	–/D6
IC102	–/D8
JP101	B2/–
JP102	A5/–
JP103	B6/–
JP104	B6/–
JP105	A6/–
JP106	B6/–
JP107	B6/–
JP108	B7/–
JP109	B7/–
JP110	B7/–
JP111	B7/–
JP112	B7/–
JP113	B7/–
JP114	B7/–
JP115	B7/–
JP116	B7/–
JP117	A7/–
JP118	A7/–
JP119	B7/–
JP120	B7/–
JP121	B7/–
JP122	B7/–
JP123	B7/–
JP124	B7/–
JP125	B7/–
JP126	B8/–
L101	–/E7
L102	–/D7
L103	–/E7
L104	–/E1
MT101	A1/–
Q101	–/D6
R101	–/E7
R102	–/E8
R103	–/D7
R104	–/E7
R105	–/D7
R106	–/D6
R107	–/D7
R108	–/D7
R109	–/D8
R110	–/D6
R112	–/E6
R113	–/E6
R114	–/D5
R115	–/D5
R116	–/D8
R117	–/D8
R118	–/D8
R119	–/D8
R120	–/E6
R123	–/E8
R127	–/E2
S101	C6/–
S102	C7/–
S103	C8/–
S104	C7/–
S105	C6/–
SP101	B8/–
X101	B6/–

6-8. Power Switch Sub PC Board


FWY603
CY81
RY81
QY81
CMK-P3X
DY81
QY82
TOSHIBA
81
84
83
82

Part No.	Location
CY81	F6
DY81	G6
FWY603	F7
QY81	F7
QY82	G7
RY81	F6

Fig. 3-6-16 EU51
Power Switch Sub PC Board

The parts location list shows
ex. A1/B1 = top side/bottom side.